

Portuguese Startups

Benefits and Consequences of a Model of Tax Deferral



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Abstract

Evidence shows that startups create jobs, add value and play a vital role in the economy of every country, but these startups face several difficulties resulting in a high rate of failure all over the world, with millions fading each year and millions not getting the proper funding to even start. Hence, this lack of financial liquidity and funding is one of the main reasons for these failures and startups that find proper sources of finance tend to survive longer than the others.

The purpose of this study was to investigate the effects of a different taxation model based on tax deferral and whether it would impact the startups' financial situation and allow them to survive the initial years of their activity. This model would be an incentive and a support given by governments, who would initially abdicate tax income but would have it repaid in case the firms survived. To reach this purpose, the Portuguese context was studied, introducing only a deferral of taxes, with the tax structure remaining the same. It was then accounted the impact to the Portuguese government and applied to a representative set of companies. Another aim was to conduct a qualitative and quantitative research on the benefits of this model through the collection of the opinion of specialists and through the realization of surveys.

The results demonstrated that if companies were free of taxes during their initial years of activity they would have had an increased financial liquidity that could be important for the firm's survival while acting as an incentive for the starting of new businesses, without prejudice of the state. Moreover the opinions of the experts and the survey's results are favorable to the benefits of this model.

Abstracto

A realidade empresarial demonstra que as startups criam emprego, valor e desempenham um papel crucial em cada país. No entanto estas startups enfrentam grandes dificuldades que resultam numa reduzida taxa de sobrevivência em todo o mundo, sendo que milhões declaram falência todos os anos e outras tantas não conseguem sequer obter o financiamento necessário para começar. Estas dificuldades de acesso ao crédito e falta de liquidez financeira são as principais razões de falência destas startups, sendo que as que conseguem encontrar fontes de financiamento adequadas tendem a sobreviver mais do que as outras.

O propósito deste estudo prende-se com o interesse em investigar os efeitos que um diferente modelo de impostos, baseado no diferimento dos mesmos teria na situação financeira das empresas, se as ajudaria a sobreviver nos seus anos iniciais de actividade. Este modelo seria um incentivo e um suporte concedido pelo governo que abdicaria inicialmente de receitas de imposto mas que teria o seu reembolso no futuro, caso as empresas sobrevivessem. Para este propósito, o contexto português foi estudado, introduzindo apenas um diferimento de imposto, com a restante estrutura de impostos a manter-se igual. Posteriormente foi avaliado o impacto que tais medidas teriam para o governo português assim como para um grupo representativo de empresas portuguesas. Outro objectivo, consistiu em fazer uma análise qualitativa e quantitativa dos benefícios deste modelo através da recolha de opinião de especialistas e da realização de inquéritos.

Os resultados demonstraram que se as empresas pudessem diferir os impostos nos seus anos iniciais de existência, teriam uma maior liquidez financeira que pode ser importante para a sua sobrevivência ao mesmo tempo que pode ser utilizado como incentivo para a criação de novos negócios sem prejuízo do estado. As opiniões dos especialistas e os resultados dos inquéritos foram ambos favoráveis para com a validação destes benefícios.

Preface

Acknowledgements

It has always been my opinion that increased taxation might not be the best way for a country to overcome its difficulties and develop. Therefore, with the possibility of studying this hypothesis within the Portuguese context, especially with the current austerity environment that Portugal is in, my motivation was high and grew while the study progressed.

Although highly motivated, this dissertation could not have been completed only by myself. Hence, I hereby recognize as crucial for the completion of this study the contributions of Professor Mário Valente, Dr. Francisco Banha and Dr. José Silva Jorge.

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Dr. Francisco Banha in the quality of entrepreneurship expert and more than that in the quality of a friend, contributed significantly with his opinion, experience and network of contacts providing me a sustainable base for developing my work. For that I thank him.

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List of Abbreviations

- CIT** – Corporate Income Tax
- FDI** – Foreign Direct Investment
- GDP** – Gross Domestic Product
- JN** – Jornal de Negócios
- LBP** – Loss of Buying Power
- MTRET** – Municipal Tax on Real Estate Transfer
- MTRP** – Municipal Tax on Real Property
- NSRF** – National Strategic Reference Framework
- PIT** – Personal Income Tax
- SC** – Social Charges
- SD** – Stamp Duty
- SM** – Survey Monkey
- SME** – Small and Medium Enterprises
- SS** – Social Security
- UC** – Unemployment Costs
- VAT** – Value Added Tax

Introduction

All over the world startups play a vital role in the creation of jobs and fostering the economic growth, but these startups face several difficulties in gathering the necessary conditions to survive and achieve stability. Many causes are on the basis of these difficulties but one very important is related with the access to funding and subsequent financial liquidity, because many startups fail and many others do not even start due to the lack of proper access to sources of funding.

While facing several liquidity problems companies are also demanded to pay taxes as if they were in a satisfactory situation, causing a vicious cycle of increased expenses that will annihilate any chance of the startups' survival. From this evidence, the questions whether these firms would survive if they had access to proper funding as so as if the governments and societies would benefit from their survival emerge.

The literature review provides us the necessary background on the importance of startups and the influence that entrepreneurship can have in the economic arena of every country. Previous research gives us the proper insights on the main causes of the firm's bankruptcy confirming the lack of proper funding as one important cause of failure. The main sources of financing were also reviewed as so as the economic impact of taxes with the evidence that tax deferral can be a way to increase investment.

In this sense it is the purpose of this dissertation to analyze if a different tax policy based on tax deferral can avoid startups' bankruptcy and possible leverage their growth. The main aim is through a simple method of tax deferral on the first two years of existence prove that companies can be given better conditions to succeed without decreasing significantly the government's revenues while maintaining the possibility to have those revenues back in the future if the startups indeed survive.

This study advances an analysis of the application of this hypothesis in the Portuguese context, starting by understanding what is the importance of the startups in Portugal and their main causes of failure as so as the weight taxes play on the structure of costs of these and so as on the revenues of the Portuguese government. The main goal is then to realize if

taxes can allow the survival of firms without prejudice of the Portuguese government's revenues.

The completion of this study will be conducted through the analysis of a representative set of Portuguese companies on their initial years of activity, including failed and still existent companies with the goal of understanding the weight taxes had on these.

Finally, on a quantitative and qualitative basis the realization of two surveys and two interviews will be performed in order to understand the perceptions of the population regarding the topic in study and the experts' opinions on this model.

In the end, it is expected that it will be possible to conclude whether this new model of taxes based on a tax deferral would have a positive impact on the startups' survival and on the government revenues on the medium/long term.

Literature Review

Startup

Startups are enterprises with a *“limited operating history. These companies, generally newly created, are in a phase of development and research for markets”* (Wikipedia, 2012) (1).

A startup is essentially a small enterprise recently constituted. Berger and Udell (1998) (2) categorize firms into “infants” or seed (0-2 years), “adolescents” or startups (3-4 years), “middles-aged” (5-24 years) and “old” (25 years or more), also called later stages. Using this categorization, both seed and startup companies are relevant for this study but in order to facilitate future analysis, I will also name startups the companies just created that in the Berger and Udell (1998) (2) terminology are known as seed companies. Startup companies are the future small and medium enterprises (SMEs¹) and possible the future big and multinational companies. They play a vital role in every country, viewed by many as the incubator of employment, innovation, competition, efficiency and growth (Craig, Jackson, & Thomson, 2005, p. 1) (3) with about 150 million businesses attempting to start every year worldwide, which gives about 137 000 new businesses per day (Mason, 2012) (4). Due to the lack of detached information regarding startups and SMEs (once they are often inter-related), for the purposes of this dissertation I will consider that the SMEs studies used can also be applied to startups.

Even in developed economies such as the USA and Europe the importance of SMEs is noticeable. Although not all are currently startups, most of the SMEs were once a startup therefore talking about SMEs’ importance also incorporates the startups’ importance, like it was previously assumed. In the European Union context, there are about 23 million SMEs that account for 75 million jobs and represent 99 p.p. of all enterprises *“playing this way a central role in the European economy”* (European Commission, 2005, p. 5) (5). In the USA case, for the past 15 years, the SMEs have been the *“engine of the American economy”* being

¹ From this point forward the abbreviation SME (displayed in brackets) will be used when referring to small and medium enterprises. SMEs are *“are companies whose headcount or turnover falls below certain limits”* (Wikipedia, 2012) (97). All abbreviations can be seen on the list of abbreviations.

responsible for the creation of 64 p.p. of American jobs within the private sector (National Economic Council, 2011, p. 1) (6).

The weight of SMEs across the world is undoubtedly relevant, which by logical reasons makes the study of startups equally relevant for economic purposes. This has been recognized by the U.S. Government and the European Commission that have both engaged in the enlargement and improvement of the conditions for the startups to succeed:

“President Obama² is committed to ensuring that small businesses continue to receive the tools and resources they need to address the challenges they face. These initiatives offer support to small businesses so they are able to bring the power of their ideas to the marketplace in ways that can catalyze and transform our economy, creating jobs through new innovations in products and services.” (National Economic Council, 2011, p. 1) (6)

“Support for SMEs is one of the European Commission’s³ priorities for economic growth, job creation and economic and social cohesion.” (European Commission, 2005, p. 5) (5)

The initiatives of increased support to SMEs stem from the acknowledgment that they face several difficulties in the marketplace and central to the concept of startups and even SMEs is the notion of entrepreneurship.

² *“Barack Hussein Obama II, born Aug. 4, 1961, Honolulu, Hawaii, U.S. He is the 44th president of the United States (2009 –) and the first African American to hold the office. Before winning the presidency, Obama represented Illinois in the U.S. Senate (2005–08). He was the third African American to be elected to that body since the end of Reconstruction (1877). In 2009 he was awarded the Nobel Peace Prize “for his extraordinary efforts to strengthen international diplomacy and cooperation between peoples.”* (Encyclopædia Britannica, 2012) (89)

³ *“The European Commission is the executive body of the European Union. The body is responsible for proposing legislation, implementing decisions, upholding the Union’s treaties and the general day-to-day running of the Union”* (Wikipedia, 2012) (92)

Entrepreneurship

Entrepreneurship is a growing field in economics and business, everyday more news and studies point out its importance to the equilibrium of the economy, for the wellbeing of the society and the development of countries. But, when it comes down to words, hardly ever can we get a clear accepted concept or definition of entrepreneurship mostly because from the several concepts and definitions existent they are all looked under a philosophical perspective with a lack of specific empirical measures (Ahmad & Seymour, 2008, p. 5) (7).

The first definition of entrepreneurship reaches us from the XVIII century by Richard Cantillon⁴, an Irish economist who used the term entrepreneur to define someone who engages in exchanges for profit, in the face of uncertainty. This uncertainty is the central aspect of Cantillon's entrepreneurship to whom, all those who deal with uncertainty are entrepreneurs (Hébert & Link, 1989, p. 41) (8).

Many other economists contributed for the definition of entrepreneurship but Joseph Schumpeter's⁵ definition in 1934 was the one that shaped today's conception of entrepreneurship by introducing the notion of innovation⁶ into it (Ahmad & Seymour, 2008, p. 8) (7). In Schumpeter's words, "[t]he carrying out of new combinations we call 'enterprise'; the individual whose function it is to carry the out we call 'entrepreneurs'" (Schumpeter, 1928 cited in Hébert & Link, 1989, p. 44) (9). Moreover, Schumpeter defined five manifestations as the basis for entrepreneurship: 1) the introduction of a new (or improved) good; 2) the introduction of a new method of production; 3) the opening of a new market; 4) the exploitation of a new source of supply; and 5) the re-engineering/organization of business management processes (Ahmad & Seymour, 2008, p. 8) (7).

⁴ "Richard Cantillon, born 17th century, Ballyheige, County Kerry, Ireland, died May 14, 1734, London. Irish economist and financier who wrote one of the earliest treatises on modern economics." (Encyclopædia Britannica, 2012) (90)

⁵ "Joseph Alois Schumpeter born Feb. 8, 1883, Triesch, Moravia (now Třešť, Czech Republic), died Jan. 8, 1950, Taconic, Conn., U.S. Moravian-born American economist and sociologist known for his theories of capitalist development and business cycles" (Encyclopædia Britannica, 2012) (91)

⁶ In his notion of innovation Schumpeter "argues that technological innovation often creates temporary monopolies, allowing abnormal profits that would soon be competed away by rivals and imitators. He said that these temporary monopolies were necessary to provide the incentive necessary for firms to develop new products and processes" (Wikipedia, 2012) (96)

Nowadays entrepreneurship can be seen as a set of factors and capabilities. According to Hébert and Link (1989) (8), it incorporates *“risk, uncertainty, innovation, perception and change”* accommodating *“coordination, arbitrage, ownership, speculation, innovation and resource allocation”*. Still in the authors’ words, an entrepreneur is a person that *“has a comparative advantage in decision making, and makes decisions that run counter to the conventional wisdom either because he has better information or a different perception of events or opportunities”*, having *“the courage of his convictions and face the consequences of his actions”*. It is in this sense that startups can be related with entrepreneurship, because in most cases the creation of a startup is done accordingly to, at least, some of the previous factors and capabilities.

Another important classification of entrepreneurship is related with its nature. There is a difference between *“opportunity entrepreneurship”* and *“necessity entrepreneurship”*. In low-income countries people have the tendency to start on their own, through micro or small business at a familiar level, out of necessity, created with the aim of subsistence, being this type of entrepreneurship called *“necessity entrepreneurship”*. *“Opportunity entrepreneurship”* occurs mostly in developed countries and it is related with the existence of an opportunity (through the introduction of an innovation), allowing the creation of a business with employees (commonly not just at a familiar level) that will contribute for the sector’s growth (Bohoney, 2011, p. 7) (10).

Having understood what entrepreneurship is, the question of its importance and its relation with economic development arises. Nevertheless, it is not the aim of this section or this dissertation to understand if entrepreneurship is the best way for a country to flourish but to analyze if entrepreneurship can at least influence a country’s economic development.

Economic development can be defined *“as sustained improvement in the economic well-being of the population”* (Bohoney, 2011, p. 7) (10), determined through economic growth (measured by variations in the gross domestic product (GDP⁷) per capita) and changes in the structure of the economy (e.g., from primary activities to services) (Bohoney, 2011, p. 7) (10).

⁷ From this point forward the abbreviation GDP (displayed in brackets) will be used when referring to gross domestic product. GDP is the *“the monetary value of all the finished goods and services produced within a country’s borders in a specific time period, though GDP is usually calculated on an annual basis. It includes all of*

A possible way to analyze whether or not entrepreneurship is actually related with economic development would be through the analysis of statistical data. This relation is difficult to assess due to the innumerable definitions of entrepreneurship, which make it unclear as to what type of data to use and what factors to measure. Therefore the methods to do so are limited and based on empirical evidence, like it was noticed by Wennekers & Thurik (1999) (11) who tried to link entrepreneurship and economic growth. On their study they concluded that *“entrepreneurship matters. In modern open economies it is more important for economic growth than it has ever been. The reason is that globalization and the ICT-revolution imply a need for structural change, requiring a substantial reallocation of resources. This induces an intense demand for entrepreneurship.”* (Wennekers & Thurik, 1999, p. 51) (11).

It is also important to clarify that entrepreneurship is not exclusive of individual entrepreneurs or small firms, these are vehicles *“in which entrepreneurship thrives”* but *“there are more such vehicles, for instance business units within large companies”* (Wennekers & Thurik, 1999, p. 29) (11). This means that to study the impact of entrepreneurship we must link *“the individual level to the firm and macro level”* (Wennekers & Thurik, 1999, p. 50) (11).

We've seen before that since Schumpeter, entrepreneurship is connected with the notion of innovation and innovation is clearly connected with today's societies, which are based in modern technologies and globalization that are both enhanced by innovations (Wikipedia, 2012) (12). A conclusion also achieved by Wennekers & Thurik (1999) (11), like it was seen earlier.

Structural changes are critical to the economic development and these changes are done through the innovation process, only possible due to a continuously relocation of resources done by the entrepreneurs who in order to *“carry out innovations”* constantly engage in a process of *“selection of the most viable firms and industries”* in order to replace obsolete firms *“by higher productivity and by expansion of new niches and industries”* which also fosters economic growth (Wennekers & Thurik, 1999, p. 50) (11).

private and public consumption, government outlays, investments and exports less imports that occur within a defined territory.” (Investopedia ULC., 2012) (85). All abbreviations can be seen on the list of abbreviations.

Historically there is also evidence of a positive relation between entrepreneurship and economic development, with the first playing *“a vital role both in the takeoff stages of the European economy and during the Industrial Revolution”* and more recently in some East Asian countries such as the Republic of Korea, Taiwan, Singapore, Hong Kong, Japan, Indonesia, Malaysia and Thailand all experiencing economic growth in the past decades (Wennekers & Thurik, 1999, p. 34) (11).

All these evidences clearly demonstrate that entrepreneurship can in fact influence the economic development of a country and can also be *“at the heart of national advantage”* (Porter, 1990 cited in Wennekers & Thurik, 1999, p. 43) (13).

Bankruptcy

Many companies in general but startups in particular face several difficulties in the marketplace. These have been perceived by a number of studies that noticed that inadequate financial resources are the primary cause of SMEs failure (Gregory, Rutheford, Oswald, & Gardiner, 2005, p. 383) (14). Inadequate financial resources mean that in most cases, companies will face liquidity problems by having difficulties in obtaining adequate funding.

In here appears the notion of failure in business, many definitions of business failure have been acknowledged making it a broad concept and difficult to measure. Carter and Auken (2006) (15) reviewed these definitions and resumed them in four, the discontinuance for any reason, loss to creditors, business liquidation to prevent further losses and failing to *"make a go of it"*.

It is significant to define the concept of failure because the broader it is the higher rate of failures there will be. Like Carter and Auken (2006) (15), I will use the definition of failure as being *"only those firms that declared bankruptcy"* and by bankruptcy I mean the *"firms that lack sufficient capital to cover the obligations of the business"* (Thornhill & Amit, 2003, p. 497) (16).

Bankruptcy is common among startups with about 80 p.p. of startups fading within the first 5 years of activity (Mason, 2012) (17). Although bankruptcy can be seen in a positive way as part of the self-destruction phenomena, contributing for the innovation and economic renewal, it always carries costs that do not only can impact the firm's stakeholders, more significantly the owner, employees, customers, suppliers and families and friends of the affected people but also the community's economic viability (Carter & Auken, 2006, p. 493) (15).

Evidence shows that there is a positive correlation between the firm's age and its probability of failure, with younger firms showing signals of a higher bankruptcy rate called this situation the *"liability of newness"*⁸. Both Carter and Auken (2006) (15) and Thornhill and

⁸ *"Liability of newness"*, a definition used by Thornhill and Amit (2003) (16) who also use the concept of *"liability of obsolescence"* to define the misalignment of older firms with the environment, which is dependent on their capacity to learn over time and use it to increase (positive) competence or to increase (negative) rigidity.

Amit (2003) (16) tested this hypothesis and reached the same conclusion that the age is not the primary source of failure among firms.

The causes of bankruptcy can be many and difficult to define in a way that can be studied. Nevertheless, Carter and Auken (2006) (15) hypothesises four main causes of bankruptcy based on the previous studies, being the characteristics of the firm, accessibility to capital, characteristics of the owner/manager and external markets.

They concluded that the owner/manager, the market and access to capital are important to determine the firm's likelihood of failure. On the other hand, the size of the firm (measured in number of employees or total assets) appeared not to be an important factor to the failure of a company. Finally in what concerns the firms' age, they found contradictory results that the older the firm, the more likely it is to fail.

Thornhill and Amit (2003) (16) focused only on the firms' age as the cause of failure and they found that young firms do not fail for being young, they fail because *"their internal assets stocks are exhausted"* while *"others successfully develop resources and capabilities that enable them to survive beyond infancy and adolescence"*. Grounded on a resource based view, the authors state that *"it is not the age that defines the firms failure, but their ability to create and capture value in the marketplace"* while younger firms are *"at risk for their lack of valuable resources and capabilities"*, older firms seem to be in risk if they don't *"adapt to the demands of the changing competitive environment"*. They also found that industry membership can influence the survival of firms.

Other than the firm's age as one of the causes of failure, for the purpose of this dissertation, the difficulty to access capital is the other factor that is of interest and relevant to be studied. If companies do not have access to capital or have only at unbearable levels of interest they will not be able to face initial expenses or expand themselves resulting most likely in the death of the company. Liquidity problems are therefore a point of concern for every startup. This can be seen in both studies with capital problems being considered as a contributing factor to a firm's failure. Thornhill and Amit (2003) (16) even point out that *"younger firms are more likely to become insolvent if their initial asset endowments are exhausted before they develop and deploy value creating strategic assets"*. This reasoning is crucial because it raises the question

that if younger firms had more time (and to have more time it is implicit the necessity to have more capital availability) to develop their competences there could be the possibility that they would not fail and were more likely to survive.

In what concerns funding, smaller companies do face several difficulties, the pecking order theory proposed by Myers (1984) (18) states that companies tend to prefer to use their internal sources of capital first and only after, if necessary use external sources. This theory is particular relevant within small companies that face difficulties accessing external capital due to several factors referred by Berger and Udell (1998) (2), who propose that changes in the company structure and subsequent difficulties on obtaining capital are a function of the firm size, age and information availability.

Size and information availability are particularly connected with each other once lenders have less information availability about smaller firms than bigger ones, which will result in a demand of higher returns by the lenders, forcing smaller companies to use short-term debt raising the firm's risk. This lack of information availability also known as information opacity is a result of the fact that most of the smaller firms are not subject of specific disclosure regulations about their operations neither have their financial statements audited as bigger firms are obliged to. This situation restricts investors' capacity to distinguish between worthy and unworthy businesses, raising the costs of access to funding by smaller firms and even sometimes requiring the owners of the business to personally guarantee the loan, with increased costs in the access to funding. The pecking order theory, by Myers (1984) (18) is confirmed with smaller firms using first all their internal sources of funding.

Regarding the age of the company, Berger and Udell (1998) (2) suggested that older firms are less likely to use external sources of funding as younger firms, once they have had more opportunities to accumulate retained earnings, which confirms the pecking order theory, with these funds being used first.

The study of Gregory, Rutherford, Oswald and Gardiner (2005) (14) is consistent with some of the evidences of Berger and Udell (1998) (2) with their results confirming that the size of the company do matters in regard to capital structure decisions. Regarding firms' age, their

study showed that older firms which tend to do not show strong signals of growth are consequently less attractive for possible investors.

There could be some debate around these conclusions, but the studies showed that age is not necessarily the main cause of failure among firms. On the other hand difficulties finding funding externally are predominant in younger firms which if they cannot find forms of finance themselves their most likely destiny will be its failure.

Additionally evidence also shows that many firms may not even start if they don't get the proper funding or many individuals may not even try to implement their ideas knowing how hard and risky it would be to survive in a competitive environment with not enough resources (Hamilton, Kinnett, & Pinson, 1990, p. 1) (19).

All these studies, in general pointed out the same evidence, on how an additional source of funding could be crucial for the survival of many startups.

Financing

There are many ways that a firm, and especially a small firm can find to finance its activities but all these possibilities will fit into two types of funding, either debt or equity. Like Hamilton, Kinnett and Pinson (1990) (19) stated debt is a direct obligation to pay something to someone with the correspondent interest in exchange for the lending of the money. This type of funding might be particularly interesting for the startup companies as it allows the owner to maintain control of the company. But on the other side it is a commitment to make monthly payments and in many cases only possible with high interest rates. While equity is different because it does not necessarily carry the obligation to repay the loan. The investor in its turn becomes a partner of the business which can be positive as he is interested on the firm's long-term success bringing contacts and valuable advices for the firm, but this means that he also has a say in the management and control of the company, a situation that might create some conflict with the business' owner.

Within these two types of funding there can also be a subdivision in what concerns their nature. It can be from private or governmental sources.

Governmental sources are essentially related with the financing of businesses that might impact the agency or the client population. These sources are very different from country to country, with each defining its own policy (Hamilton, Kinnett, & Pinson, 1990, p. 16) (19).

On the private side, Hamilton, Kinnett and Pinson (1990) (19) noticed that the funding could be either personal or external. Personal funding is commonly the savings invested by the business owner and money borrowed from friends and relatives, typically used to start the business on a very premature phase and in many cases it is still dependent on the external funding so that it can actually start. The external funding is more related with the formal lenders⁹. Another source of funding comprising both equity and debt is to use customer's interest on the purchase of the firm's offer and obtain financial help from this to deliver what he wants.

⁹ These lenders can be diverse, such as Banks, Credit Unions, Consumer Finance Companies, Commercial Finance Companies, Trade Credit, Insurance Companies, Factor Companies and Leasing Companies on the debt side and Venture Capital Firms, Closed-end Investment Companies, Corporate Capital Sources, Investment Clubs, Employee Stock Ownership Plans and Private Investment Partnerships on the equity side Hamilton, Kinnett and Pinson (1990) (19).

These financing sources and the financing decisions taken by the company will dictate the capital structure of the firm. These funding options can be seen through the Financial Growth Cycle analyzed by Berger and Udell (1998) (2), a framework *“used to describe the progression of the successful firm through growth phases”* (Bhaird, 2010, p. 24) (20).

Figure 1 in appendix 1 illustrates this cycle, showing the relationship between firm size, age, information availability and its sources of finance.

At the beginning very small firms need a certain amount of investment to start the business (seed capital). This capital tends to be financed by insider finance, business angels and a little later by financial institutions. At this stage the insider finance and the business angels play a vital role because, like it was previously mentioned, at first the firms might face difficulties accessing external finance and even if they are able to get it, this funding is not entirely external because in many cases it has to be personally guaranteed by the owners making it partially insider. By insider finance, Berger and Udell (1998) (2) consider all the funds provided by the startup team, family, and friends *“prior to and at the time of the firm’s inception”*. This type of funding is required at the very earliest stage of a firm’s development and might be required again when the scale of the business increases.

As the firm grows it will get access to the intermediate finance provided by venture capitalists on the equity side and financial institutions on the debt side. Typically at this point the firm has already received one or more rounds of angel finance and it has at its disposal retained profits that are saved while the firm grows. Eventually, after this intermediated finance, if the firms continue to exist and grow they may gain access to public equity and debt markets. This usually happens at a later stage of the company’s existence, where they are no longer considered a startup (Berger & Udell, 1998, p. 8) (2).

This growth cycle allow us to better understand what role entities play in the finance of the companies according to their stage of development. Like it was recognized by the authors, although this model cannot be applied to all the companies, meaning that it is not intended to fit all businesses, it provides a clear view of the most common way companies get access to finance. A reality not always evident is that the different types of funding are not necessarily exclusive or substitutes but can also be complements, for example the angel

finance and venture capital are often complementary as well as the venture capital and public equity (Berger & Udell, 1998, p. 12) (2).

In the case of the startups it is seen that business angels are crucial at the initial stages of the creation of the company. The business angel finance can be described as an informal market for direct finance (Berger & Udell, 1998, p. 15) (2). It plays a key role in diminishing the financial gap that firms might face if they cannot get access to credit but more than a financial provider the business angel is a partner of the business bringing also advice and counsel which can be very important.

A business angel can be an individual or a small investing group. Usually their investments are local and they are seen as co-entrepreneurs of the firm, providing strategic advice, network connections and acting as a facilitator of future finance within the financial institutions or the venture capitalists, this means that the business angel provides credibility for the firm reducing the "*liability of newness*" (Sorheim, 2005, p. 189) (21).

The financial funds provided by the business angels are small compared to venture capital investments, but they can be as or even more important than the venture capital investment once it allows the creation of the firm that otherwise wouldn't exist. Another important view of the importance of the role of business angels is referred by Sorheim (2005) (21) where he states that centered on the resource-based view literature firms can create a sustainable competitive advantage based on their resources but if startups are not able to take advantage of these initial resources they won't be able to create a competitive advantage and it is on this sense that business angels can allow the creation of the conditions necessary for firms take advantage of their resources.

The next rounds of finance for startups after the business angels can be of the responsibility of venture capitals that appear at a later stage, when in most cases the company is already established and commercializing its innovation. Although investing in some startups, usually the venture capital industry invests on companies that are no longer considered a startup and use this money to invest in bigger businesses (Zider, 1998, p. 133) (22).

This way it is seen how startups can find sources of funding, however this process is not guaranteed to be successful for every startup and many face several difficulties in finding proper funding with some not being able to find it, resulting in the firm's disappearance or in not even starting.

Taxation

According to the Encyclopædia Britannica (2012) (23), taxation is the “*imposition of compulsory levies on individuals or entities by governments*” being “*levied in almost every country of the world*” with the purpose of raising “*revenue for the government*”. Taxes can be direct or indirect, but in both cases they are not paid in exchange for other good, for this they are considered unrequited.

The origin of taxation dates back to the ancient world, but this practice was not as common as it is nowadays. They start to become usual in the Greek and Roman empires with the introduction of taxes on consumption. Since then its importance, diversification and weight in the economy have been growing (Encyclopædia Britannica, 2012) (23).

Governments use taxes in order to finance its operations that should, in theory, be used to increase the welfare of the taxpayers. Many studies have examined the purpose and effects of taxation in society. Among these, Richard A. Musgrave¹⁰ distinguishes three main objectives of taxation, being resource allocation, income distribution and economic stability (Encyclopædia Britannica, 2012) (23).

For the purposes of this dissertation, the effects of taxation on the economy will now be the topic of concern, in order to understand if taxes are relevant for the economy of a country or if they can, at least have an impact on it. Once again it is not the aim of this topic to analyze if taxation is the best way to stimulate a country’s economy but only if they can affect it in any way, if they are relevant.

In the research conducted by Gilbert (1942) (24), the author states clearly that “*every tax has economic effects*”, he uses this postulate as the basis of his study. He does so because he considers that taxes, by affecting the profitability of investments, clearly affects the savings and spending of consumers, therefore they cannot be considered economically neutral. Studies point a theoretical negative correlation between the increase in taxes and the economic growth. Taxes do not have a neutral effect because they introduce distortions to

¹⁰ “Richard Abel Musgrave (1910-2007) was a leading 20th-century economist whose work transformed the field of public finance. He was considered a candidate for the Nobel Prize. Musgrave’s seminal work, *The Theory of Public Finance* (1959), theorized the economic role of government in partnership with the private sector in democratic societies.” (Princeton University Library, 2007) (83)

the economy and to the behavior of the individuals (impacting producers and consumers). This negative correlations and distortions will result in a loss of efficiency that affects savings and investments (Kresner-Skreb, 1999, p. 146) (25).

Gilbert (1942) (24) and Kresner-Skreb (1999) (25) both confirm what was previously expected, that taxes impact the economy of a country. This evidence is crucial for the relevance of this study.

Kresner-Skreb (1999) (25) brings out a point that is also pertinent for this analysis, which is related with the behavior of individuals in the face of taxation. Considering that entrepreneurship can be “*crucial for the vitality of the market*” (Kresner-Skreb, 1999, p. 153) (25) and that entrepreneurship involves essentially high levels of risk taking. Kresner-Skreb (1999) (25) suggests that income taxes can influence the investment level, once they are decreasing the compensation of investors that put their money on risky investments. This reasoning assumes a rational investor who will invest on a business that provides him the best output between the conditionings risk/return in accordance to its risk aversion preferences and that profitability is the compensation for the risk undertaken. This means that for higher levels of taxes there would be a decrease on the levels of investment and therefore on the levels of entrepreneurship due to an increased discourage from entrepreneurs (who lack incentives for investing), that would affect economic growth and development (Krelove, 1995, pp. 55-58) (26).

Theoretically there can also be another possibility related with the outcome of increased taxes. Basically, there could be the case of an increase of investment if the state becomes partner of the business even with an increase of taxes. This situation is possible if the state becomes partner in the business by bearing part of the risk through the possibility of full transfer of losses to future income. In the view of Krelove (1995) (26):

“In the absence of taxation, an investor would be willing to invest 1 in an asset that has only two possible payoffs per unit invested, either 0 or 2, after deducting opportunity costs of the funds and the cost of the investment. The investor’s ex post wealth is risky, and equal to 2 or 0. Now introduce a tax at the rate of 50 percent on the return to the asset, with full loss offset. Then by doubling the investment in the risky asset, that is, by investing 2 rather than 1, the

investor can attain the same distribution of after-tax returns as in the no-tax situation. For by investing 2, the total return after deducting the cost of the investment and the opportunity cost, is either 4 or 0 before tax, and either 2 or 0 after tax. But this after-tax distribution is identical to what could be attained without taxation of the return. In this example, the tax has induced the individual to double investment in the risky asset."

This reflection demonstrates that taxes can impact positively the investment if the state bears part of the risk. Nevertheless the author still alludes that although there was no increase on the private risk, the total risk has increased (being the difference beared by the state). Still in this research there is no clear evidence on the empirical verification since it is difficult to separate factors among the decision investment criteria.

With this reasoning from Krelove (1995) (26), there is an important idea that is pointed out, which is that investments might not be reduced due to taxation if the state becomes, in a way, partner of the business, bearing part of the taxes (therefore part of the risk) through the basic idea of transferring these taxes into the future, in a process of tax deferral.

Tax Deferral

A way for the Government to become partner in the business and provide an incentive for investors to invest through taxation is to allow taxes to be deferred. This way the Government is giving up on some current revenues from taxation (which can be seen as its stake on the company) but having no extra expenses because meanwhile these are non-payable taxes and not financial aids spent. This means that there is no money coming out on the governmental side, just not money coming in as it was supposed to.

Tax deferral is a concept mainly used to describe a form of tax avoidance¹¹, a legal practice used to modify the financial situation of a company or individual in order to lower the amount of income tax owed, usually a consequence of tax planning (Investopedia ULC., 2012) (27). Tax deferral is a broad concept where investment earnings such as interest, dividends or capital gains accumulate tax free for a specific period of time. It benefits the investor in two ways, with the first being directly related with tax-free growth, the fact that the taxes can be paid only at a later date. The second benefit is that taxes are deferred in a period where personal or corporate earnings are reduced but when they are taxed the person or company is earning higher income, having better conditions to pay the deferred taxes (Investopedia ULC., 2012) (28).

The opportunity for tax deferral arises due to a difference (called taxable temporary difference) normally existent between the accounting profit (the profit or loss for a reporting period before tax) and the taxable profit (the profit or loss for the reporting period determined by reference to tax principles) (Accountancy Students, 2011) (29). According to Accountancy Students (2011) (29), these temporary differences can be:

“Debit balances in the financial statements compared to the tax written down values. These give rise to deferred tax liabilities¹² and are known as taxable temporary differences.

Credit balances in the financial statements compared to the tax written down values. These give rise to deferred tax assets¹³ which are known as deductible temporary differences.”

¹¹ Do not confuse tax avoidance with tax evasion, which is “an illegal practice where a person, organization or corporation intentionally avoids paying his/her/its true tax liability” (Investopedia ULC., 2012) (80)

¹² Deferred tax liability is “the total amount of tax that an entity is legally obligated to pay to an authority as the result of the occurrence of a taxable event” (Investopedia ULC., 2012) (81)

And they can arise in the following circumstances:

“Revenue recognized for financial reporting purposes before being recognized for tax purposes. Such instances are taxable temporary differences which give rise to deferred tax liabilities.

Expenses that are deductible for tax purposes prior to recognition in the financial statements. These are taxable temporary differences which give rise to deferred tax liabilities.

Expenses that are accounted for the financial statements prior to becoming deductible for tax purposes. These are deductible temporary differences which give rise to deferred tax assets.

Revenue recognized for tax purposes prior to recognition in the financial statements. These give rise to deductible temporary differences and deferred tax assets.”

These common definitions on tax deferral are seen through the accounting side, where firms try to plan their revenues and expenses in order to maximize their benefit from existent tax policies. For the purposes of this dissertation, the tax deferral approach that will be used will be based on the taxation benefits it will bring to the company, but under the perspective of being possible to defer due to a governmental incentive.

¹³ Deferred tax asset is “an asset on a company’s balance sheet that may be used to reduce any subsequent period’s income tax expense” (Investopedia ULC., 2012) (86)

Industry Analysis

Global Environment for Investment

The world is now a polycentric place with a growing number of economic spheres of influence. In a globalized world, there has been an increase of the competition among countries in order to attract investment while companies have found easier ways to go outside their own country and explore more attractive solutions to their businesses (Ernst & Young, 2011, p. 2) (30).

Fast growing markets are a constant focus of companies and people that are relocating or opening new business in these markets where the fast growing environment and small costs of activity are seen as a perfect match to invest in. These countries obtained for the first time in 2010 more than fifty percent of the world's foreign direct investment (FDI¹⁴) (Ernst & Young, 2011, p. 6) (31).

Trying to reemerge from a debt crisis (Matthews, 2011) (32), Europe as whole is facing adversities with the European's FDI falling from 43 p.p. in the last decade to 26 p.p. in 2010 (Ernst & Young, 2011, p. 9) (30). This means that Europe is less attractive to make business and although this index measures the conditions for foreign investment, these can also be applied for the home companies as the conditions are similar.

Although this globalization process presents challenges it also brings opportunities. According to the Ernst & Young (2011) (30) study, Europe has many advantages in terms of the quality of their products and their brands' recognition but to face the future and build incentives for investment, Europe should adopt more competitive fiscal policies and reduce the costs of selling their quality goods and services (see figure 2 in appendix 1). Additionally it should provide better sources of funding for companies like is defended by Ronald Kent¹⁵, who states that European companies need "*access to affordable capital*" because many of their

¹⁴ From this point forward the abbreviation FDI (displayed in brackets) will be used when referring to foreign direct investment. FDI is "*an investment abroad, usually where the company being invested in is controlled by the foreign corporation*" (Investopedia ULC., 2012) (82). All abbreviations can be seen on the list of abbreviations.

¹⁵ "*Ronald Kent, is CEO of NYSE Euronext London, Executive Vice President and Head of International Listings for NYSE Euronext, and he is responsible for all of NYSE Euronext's European and US markets for issuers from EMEA and Asia.*" (World Investment Conferences, 2011) (84)

traditional sources of capital *“have either dried up or that their terms became much less attractive”* (Ernst & Young, 2011 , p. 38) (30).

Portugal, being a European country is also subject to these conditionings, possibly facing harder times as a result of the specifics of the Portuguese crisis (Barrientos, 2012) (33). Besides, countries like Portugal face two challenges, by the more developed economies (in activities that are based on knowledge and innovation) and, like it was previously seen, by the less developed ones (CSF III Observatory, 2007) (34).

The FDI in Portugal decreased 46 p.p. from 2009 to 2010 not surpassing the € 1.1 billion. In a percentage of the gross domestic product (GDP) it shows signs of great variability (from about 1 p.p. to 5 p.p.) over the past 20 years with a decreasing tendency accentuated over the past 3 years of the study (see figure 3 in appendix 1). The causes pointed to this disinvestment are the lack of economic growth, the taxes and public debt increase (Ernst & Young, 2011, p. 14) (31).

The numbers show that Portugal is less attractive to invest in, meaning that measures should be taken to invert this tendency. There are two clear options to stimulate economic growth (see figure 4 in appendix 1), which are supporting SMEs and reducing taxes (Ernst & Young, 2011, p. 16) (31).

The Portuguese Economic Environment

The Portuguese economic environment is facing a serious debt crisis that directly and indirectly affect the country's performance at a global and company level.

Matthews (2011) (32) resumed the factors that forced Portugal to request a bailout to the European Union, stating that the country was a victim of the panic generated by the Greek debt crisis conjugated with no expectations of a significant growth in the long term, a high deficit forecast and a below average productivity. Moreover an outdated legal structure, strict labor market regulations and an increase of the interest rates for the Portuguese public debt also contributed for the need for a bailout.

Many other reasons might be in the basis of the current situation which Portugal is in, but it is not the purpose of this dissertation to analyze what were those reasons or which ones were more significant. It is, on the other hand, an aim of this dissertation to characterize the current Portuguese economic environment and assess the role and difficulties that startups might have in this context. For that I will start by analyzing some general indicators and tendencies over the past years so that the startup's situation becomes more clear.

Portugal is a country with about 10,6 million people, a number that has been increasing over the past 10 years (see figure 5 in appendix 1). From these, about 66,83 p.p. of the total population are adults (from 15 to 64 years old), but with a growing third age population (more than 65 years old) representing 18,01 p.p. while children (until 14 years old) are only 15,16 p.p. (see figure 6 in appendix 1). In terms of gender, there is an approximation of the values with the male population representing 48,39 p.p. against the majority of 51,61 p.p. being women (see figure 7 in appendix 1). All these values are characterized by a stabilization tendency.

With the increase of the life expectancy, there is also an ageing tendency occurring, not only in Portugal but on other developed countries as well. Especially in Europe and Asia, signaling a changing in the consumption habits (eldest people tend to consume less) and on the public expenses particularly with an increase with expenses in healthcare and in the benefit pension system. This increase in the expenses will ultimately result in augmented taxation of both individuals and companies resulting in a decrease on the productivity

(Wikipedia, 2012) (35). Meaning that Portugal will have the need to try to contradict this tendency in the overall consumption and productivity in order to grow.

The economically active population¹⁶ represents 52,46 p.p. of the total population being more than 5 million and half (see figure 8 in appendix 1) with the Portuguese unemployment¹⁷ rate been constantly growing over the past decade (see figure 9 in appendix 1) surpassing the 10 p.p. rate on 2010, meaning that more than 600.000 persons were without a job (see figure 10 in appendix 1). Other than the Portuguese unemployment rate, figure 9 in appendix 1 also shows the rates of the European Union (EU-27) and the Euro Area¹⁸, being possible to observe one clear growing tendency since 2008. Another clear observation is that the Portuguese rate has been growing more than the average of the European Union and the Euro Area in the past decade, growing from 4 p.p. to more than 10 p.p. in 2010, while the other European rates have been very similar and stable around the 8 p.p. indicating that the Portuguese unemployment is more unstable and is growing to unseen levels.

These high levels of unemployment are now a reality in Portugal and carry a cost for the individual, society and economy. Unemployment will affect the capability of individuals to make money and meet their financial obligations, facing a situation where they are no longer able to pay what they previously were. This will result in increased social discrepancies that might generate more crime, manifestations and possible revolutions. But it will also affect the buying power of the families, reducing the consumption and therefore affecting negatively the companies (Wikipedia, 2012) (36).

Although unemployment implies many costs it also brings opportunities for companies and individuals (Wikipedia, 2012) (36). For the companies' side they have now a higher choice when hiring, with better possibilities to find the best candidate. For the individuals can also be an opportunity in which due to the need to find ways to finance their personal expenses they are forced to be creative and are more likely to innovate in ways that they haven't

¹⁶ Economically active population is *"the fraction of a population that is either employed or actively seeking employment"* (Business Dictionary, 2012) (103)

¹⁷ Unemployment *"as defined by the International Labour Organization, occurs when people are without jobs and they have actively sought work within the past four weeks"*. (Wikipedia, 2012) (36)

¹⁸ Euro Area *"is an economic and monetary union (EMU) of 17 European Union (EU) member states that have adopted the euro (€) as their common currency and sole legal tender"* (Wikipedia, 2012) (93)

previously think of, by creating their own business, a situation that will possibly benefit the individual and the society. This is conceivable by becoming an entrepreneur and according to what was seen in the Literature Review, Entrepreneurship can contribute to the economic development of a country. In this sense, although startups might face more difficulties with a reduction in consumption, there might be room for new opportunities.

The GDP per capita has shown signs of a steady increase (see figure 11 in appendix 1) over the last decade but in 2009, for the first time it decreased most certainly as a result of the economic environment. The inflation¹⁹ rate (see figure 12 in appendix 1) in its turn, although almost always positive over the past decade has shown an unstable behavior with a decrease tendency stabilizing between the 2 p.p. to 3 p.p. per year. The exception occurred in 2009 where there was a deflation²⁰ period, rapidly overcome by an heavy increase in 2010 which is expected to continue for the year of 2012 where it is predicted to reach 3,6 p.p. (RTP, 2012) (37). Comparing to the tendency in Europe we see once again that Portugal shows a more instable conduct, while the inflation rate in Europe has been steady around 2 p.p. with only a slight decrease in 2009 (which was also a year of instability to Portugal).

The existing increase tendency is abnormal considering the previous levels of the Portuguese inflation rate. A direct consequence of *“a rise in the general level of prices of goods and services”* (Wikipedia, 2012) (38) is lowering the purchasing power of the population (because the real value of money drops), this means that consumption will decrease which is also enhanced by the Portuguese debt crisis and the previous referred factors like unemployment and ageing of population. Once again this will affect jobs and companies making harder for these to survive, especially startups that have a limited access to funding. In fact, the number of existing companies already showed signs of decrease in 2010, which is against the trend of increasing number of companies existent before (see figure 13 in appendix 1).

The present European and the Portuguese crisis are considered debt crisis because they are the result of a significant debt burden engaged by the governments while there was a rising

¹⁹ Inflation *“in economics, is a rise in the general level of prices of goods and services in an economy over a period of time”*. (Wikipedia, 2012) (38)

²⁰ Deflation is *“a general decline in prices, often caused by a reduction in the supply of money or credit.”* (Investopedia ULC., 2012) (87)

in the interest that made the debt almost unbearable for some European countries. This increase of the interest rates is mostly related with the speculation that governments wouldn't be able to pay the debt they were contracting (Barrientos, 2012) (33).

This was what happened to Portugal, resulting in the adoption of *"austerity measures that angered workers and put its economy into recession"* (Barrientos, 2012) (33). Figure 14 in appendix 1 illustrates this, where we can see an exponential increase of the Portuguese debt, being in 2010 € 131.801,90 million, a value almost thirteen times bigger than the € 10.289,20 million verified in 2000. Although the revenue from taxation showed a steady increase over the years (with the 2009 exception), it should be noticed that the austerity measures taken for the 2011 year are still not visible in the graph, and when they are it is expected that they increase this source of revenue significantly.

The interest rates for the Portuguese debt have shown a slight decrease tendency until being subject of a high increase since 2010. This is true for the 30, 10 and 5 year debt range (see figures 15, 16 and 17 in appendix 1). Until 2010, the rates for all the 3 types of debts were similar varying from about 4 p.p. to 6 p.p. but since 2010 the increase led to different results. For the 30 year debt period it reached a maximum of 12,14 p.p. in the interest rate; for the 10 year period, the interest rate reached a maximum of 17,39 p.p. against the minimum of 3,16 p.p. in 2005 and for the 5 year debt period the maximum was of 22,87 p.p. a value 9 times higher than the minimum also verified in 2005 (of 2,17 p.p.). These figures demonstrate how unbearable the interest rates had become for the Portuguese government forcing the bailout request and the subsequent austerity measures.

The growing debt with rising interest rates forced the Portuguese government to take action trying to control the debt levels. The way chosen was to increase taxation, both for individuals and companies. This austerity impacted individuals and companies, as a result companies are having harder times to survive. This can be seen in the number of failed companies, that in the Portuguese context has increased significantly in the past few years (see figure 18 in appendix 1). Moreover, it is consistent with the FDI decrease tendency like it is shown in figure 3 in appendix 1, being the country less attractive to invest in.

The result was a recession period that obviously had significant repercussions on the enterprise sector due *“to a process of structural adjustment – caused by the exhaustion of an extensive model of economic growth and by the deterioration of its respective competitiveness within a context of globalization”* (CSF III Observatory, 2007, p. 14) (34). Nevertheless, Portugal is still in the top-30 countries (out of 183) regarding the ease of doing business according to the World Bank ranking (see figure 19 in appendix 1) and is in the top-25 (out of 134) according to the Forbes ranking (see figure 20 in appendix 1) for the best countries to do business in. These rankings are referent to the year of 2011 and take into consideration several topics, while the World Bank ease of doing business ranking is more concerned in measuring the regulatory environment (The World Bank, 2011) (39), the Forbes ranking is concerned with factors such as *“property rights, innovation, taxes, technology, corruption, freedom (personal, trade and monetary), red tape, investor protection and stock market performance”* (Forbes, 2011) (40). The higher the ranking the better conditions the country has to do business and being in the top-30 in both cases means that Portugal, overall has a good environment for businesses to take place.

Although it's a good environment for business, there is clear evidence that some measures might help the enterprise sector. Ernst & Young (2011) (31) survey evidenced that Portugal has about 350.000 SMEs while big companies are about 1.200. If each of the startups creates one job (a very achievable number), in the end there will be an extra 350.000 jobs (with the Portuguese unemployment population in 2010 being over 600.000 (see figure 10 in appendix 1) while to achieve that number big companies would have each to create 292 new working places (which seems less feasible), therefore betting on SMEs might have a higher impacts for the Portuguese economy. The study also refers that a reduction of a 1 p.p. in the average tax rate of the companies would result in about € 1000 of annual savings for each company and an increase on the economic growth of 0,2 p.p. This is a clear evidence of the weight that SMEs have on the Portuguese economy and the effects taxation can also have. Moreover figure 4 in appendix 1 points out the importance of supporting SMEs and reducing taxation as a way to attract investment.

The Portuguese Environment for Startup's Creation

About 99 p.p. of the Portuguese enterprise sector is composed by SMEs (Ernst & Young, 2011, p. 16) (31) therefore these are crucial to the economy confirming what was referred in the Literature Review in which startups (the previous SMEs) act as incubators of employment, innovation, competition, efficiency and growth. In this sense, supporting startups will bring benefits to the economy.

The number of new startups created every year in Portugal, after a big increase in the beginning of the millennium reaching 45.290 new companies created in 2001, dropped significantly over the next four years with 22.059 created companies in 2005. Since 2005 until 2008, this number has been increasing steadily but like it has been seen in the previous economic indicators 2009 was a year of decreases and the creation of new companies decreased as well by 12,75 p.p. comparing to 2008. In 2010 there was an increase of 8,22 p.p. reaching the 28.001 new companies. The tendency, after the big drop in 2001 has been of a steady increase with small variations and for the last five years of the data, the number of new companies varied little between the 25.651 and 29.657 (see figures 21 and 22 in appendix 1).

The survival rate of the Portuguese startups within two years of activity shows a clear decreasing tendency from 58,70 p.p. in 2006 to 49,36 p.p. to 2009 (see figure 23 in appendix 1). This survival rate is referent to the companies created two years earlier, so for a rate of 49,36 p.p. in 2009 means that for every 100 companies created in 2007, two years after (by 2009) about only 49 are still in activity.

The tendency verified demonstrates that Portuguese startups are having higher difficulties surviving and although it's not easy to predict, based on the economic environment and austerity measures taken by the Portuguese government it is not expectable that this tendency improves, in fact it has higher chances of decline even more. This means that measures to support startups are needed so these can have higher chances of survival – in here it is seen how pertinent a tax deferral based model for startups might be.

We've seen earlier that according to Thornhill and Amit (2003) (16) startups fail not because they are young but because they do not have the time or capacity to create and capture value

in the market place. This is so because they exhaust their initial resources before creating strategic assets. On other words, startups on their initial years have reduced sources of revenue and high liquidity necessities but higher difficulties accessing funding (either internal or external) and it is this discrepancy that causes many startups to fail, not the single fact of being younger.

The Portuguese case is no different, and in 2009, 93 p.p. of the Portuguese companies accessed some type of credit and from these, 94 p.p. accessed bank credit (see figure 24 in appendix 1). A clear demonstration of the financial necessities of the Portuguese companies.

From the companies that have had access to credit, 53 p.p. found it more difficult to do so, being specially difficult among the micro and SMEs contrasting with what was felt in big companies where 56 p.p. of them state that they felt no increase difficulties accessing credit. (see figure 25 in appendix 1).

The increased difficulties to access to credit are in contrast with the credit necessities of each type of company with 67 p.p. of big companies having identical credit needs and only 28 p.p. having higher needs. While the micro and SMEs have bigger difficulties between 33p.p. and 35 p.p. and identical needs between 47 p.p. and 54 p.p (see figure 26 in appendix 1). In other words, the companies that had more credit needs are also the ones with higher difficulty in getting it.

All these can also be proved with the financial situation of every company (evaluated by the company itself) with a considerable percentage of micro and SMEs considering their situation bad or very bad, specially the micro companies with 52 p.p. in this category. While only 15 p.p. of big companies considering their financial situation to be bad or very bad in 2009. The opposite is also true, with a significant percentage of big companies considering their situation to be good or very good (34 p.p.) against smaller percentages in the micro and SMEs (see figure 27 in appendix 1).

Although the study does not differentiate between startups and the rest of the other companies, we know that most of the startups start as a micro or SMEs, therefore the

information provided in these segments can also be applied to startups, with these having higher needs for credit but higher difficulties accessing it as well.

Internationally this difficulties can also be verified in the The World Bank (2011) (39) rank (the same study used to measure the ease of doing business), where Portugal appears in the 126th position (out of 183) regarding the easiness of getting credit, at the same level of countries like Bahrain and Cape Verde. A situation that shows how difficult it is for the Portuguese companies to have access to credit.

Dr. Banha's²¹ experience also evidences the difficulty of startups having access to proper bank credit, with innovative companies facing even harder difficulties by the fact that they are considered more risky and typically only with venture capital and business angel funds they can get access to the necessary funding. But the other startups, considered less risky although might face easiness in accessing that credit, they will only get the credit if they have a strong and experienced management team, otherwise they'll find many difficulties as well.

This shows that in general, Portuguese startups face several difficulties accessing financing from the banks.

The overall conclusions, other than pointing out the importance that startups have on the Portuguese economy demonstrate the importance of providing these startups with adequate conditions to survive by reducing the fiscal levels, once again it is observable the role that deferred taxes might have on the startups survival, that with these higher difficulties could benefit from another indirect source of funding.

There is another important observation made by Valente (2011) (41) of the Portuguese society and the Portuguese entrepreneurs that might help validate a model of tax deferral within the Portuguese context. It is related with the finding that there is a controversial aspect within the entrepreneurship in Portugal.

Typically, Portugal is a conservative country, predominantly catholic where relations and trust are very important for doing business (Kwintessential, 2010) (42). Adding to these, the

²¹ Dr. Francisco Banha was interviewed within the purpose of this study. All the information regarding Dr. Banha's opinion inserted within this dissertation is based on the interview made which was transcript and can be seen in appendix 2, interview 2.

Uncertainty Avoidance Index²², developed by Geert Hofstede²³ places Portugal at the top of the chart (just surpassed by Greece in a total of 66 countries) (see figure 29 in appendix 1), meaning that Portugal maintains “*rigid codes of belief and behavior*” and is “*intolerant of unorthodox behavior and ideas*” (Itim International, 2012) (43), characteristics somehow contradictory to the notion of entrepreneur and entrepreneurship that, like it was seen, incorporates concepts like “*risk, uncertainty, innovation, perception and change*” (Hébert & Link, 1989) (8). At first this could only mean that Portugal and entrepreneurship or even the simple creation of new businesses would not have a positive correlation, with Portugal having low indices of business creation.

The surprising outcome is that in fact, Portugal is in the top-25 (out of 53) concerning the most entrepreneurial countries (see figure 30 in appendix 1), a ranking introduced by Fortune Small Business (2007) (44) that incorporates the easiness of starting and operating a business as so as the national rates of high-expectation entrepreneurship. Portugal is just behind Germany and in front of countries like Italy or Spain. This situation shows how in fact, against what was expectable, Portugal has a strong entrepreneurial facet.

The reasoning made by Valente (2011) (41) is that having the Portuguese society a high level of risk avoidance, but a good environment for the creation of new businesses (that are indeed created every year) seems to create a sort of paradox. But according to Valente (2011) (41), it is not really a paradox because what happens is that in Portugal new companies are created but with a low level of risk. Businesses are usually replicated after proving they are viable and are in many cases successful within their environment and area of scope but are not a result of innovative ideas with potential to become a national success or exported internationally. In the author’s words:

²² Uncertainty Avoidance Index “*expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? Countries exhibiting strong UAI maintain rigid codes of belief and behaviour and are intolerant of unorthodox behaviour and ideas. Weak UAI societies maintain a more relaxed attitude in which practice counts more than principles.*” (Itim International, 2012) (43)

²³ Geert Hofstede “*born as Gerard Hendrik Hofstede (5 October 1928 in Haarlem, Netherlands) is an influential Dutch researcher in the fields of organizational studies and [...] organizational culture, also cultural economics and management. He is a well-known pioneer in his research of cross-cultural groups and organizations and played a major role in developing a systematic framework for assessing and differentiating national cultures and organizational cultures. His studies demonstrated that there are national and regional cultural groups that influence behavior of societies and organizations.* (Wikipedia, 2012) (94)

“Portuguese are quite entrepreneurial but are still risk averse. They are quite disposed and able to become their own bosses. But their entrepreneurial spirit is focused on creating small businesses and lifestyle businesses: a restaurant, a clothing shop, a bar, a hairdresser salon, a newsstand, a consulting/freelance job, etc. Something that basically doesn’t defy the status quo, something that is safe, something that won’t shock friends and family and that assures that one doesn’t deviate from the norm. Portuguese are still provincial, they are rather happy to create businesses that are focused on our small country and that just provide living expenses. They are still incapable of thinking with a European (or worldwide) focus. They are still incapable of thinking big, of having a chance to make millions.”

What is seen is a society showing signs of entrepreneurial capabilities but remaining restrained by a conservative mentality. Once again the pertinence of a model of tax deferral appears in here. It would allow lowering the risk of creating risky businesses, acting as an incentive for entrepreneurs to start on their own. This incentive would allow to take advantage of the entrepreneurial capacity of the Portuguese society, resulting possibly in the creation of more innovative ideas with higher potential to succeed instead of the already known common businesses.

The Portuguese Enterprise Taxes

Taxes are a way for the state to obtain funding that is primarily supposed to be used in order to improve the welfare of the taxpayers (either individuals or entities) but there could also be other purposes for the use of taxation, like it was previously mentioned, such as resource allocation, income distribution and economic stability.

The recent years, in Portugal have been characterized by constant increases on taxes on both individuals and entities. These raises have been justified with the need to face expenses and of course, to reduce the debt (some of them were imposed by the time of the agreements for the Portuguese bailout) others increases are justified by unexpected budget deviations (Jornal de Notícias, 2011) (45). Whatever the reason, currently, in Portugal there has been an increase of taxation.

The ways Portuguese companies can be taxed are many, with the most common being (Autoridade Tributária e Aduaneira, 2009) (46):

Corporate Income Tax (CIT²⁴), in Portuguese: *IRC – Imposto sobre o Rendimento Colectivo*

Value Added Tax (VAT), in Portuguese: *IVA – Imposto sobre o Valor Acrescentado*

Municipal Tax on Real Estate Transfer (MTRET) in Portuguese: *IMT - Imposto Municipal Sobre as Transmissões Onerosas de Imóveis*

Municipal Tax on Real Property (MTRP) in Portuguese: *IMI – Imposto Municipal sobre Imóveis*

Stamp Duty (SD) in Portuguese: *IS – Imposto de Selo*

Personal Income Tax (PIT) in Portuguese: *IRS – Imposto sobre o Rendimento de Pessoas Singulares*

Social Security (SS) in Portuguese: *SS – Segurança Social*

²⁴ From this point forward the abbreviations CIT, VAT, MTRET, MTRP, SD, PIT and SS (displayed in brackets) will be used when referring to Corporate Income Tax, Value Added Tax, Municipal Tax on Real Estate Transfer, Municipal Tax on Real Property, Stamp Duty, Personal Income Tax and Social Security, correspondently. All abbreviations can be seen on the list of abbreviations.

From the seven different taxes mentioned above, only the first two and the last two, the CIT, VAT, PIT and SS contributions are the ones truly general, meaning that they are the only ones that are taxable to all the companies no matter their activity, while the other three are dependent on other factors, for example the MTRET is only *“levied on the transfer for consideration of ownership rights or parts”* (Autoridade Tributária e Aduaneira, 2009) (46), not being necessarily taxed in every company. The Stamp Duty in its turn is *“levied on any deeds, contracts, documents securities, books, papers and other events”* (Autoridade Tributária e Aduaneira, 2009) (46) and although present in every company’s activity (because contracts and other documents have to be signed in order for the business to run) will not be equal to all but even so, they are small percentages and small fees compared to the other taxes. For example, a license document for a typical restaurant is 50€ (Autoridade Tributária e Aduaneira, 2009) (46), making this type of tax very different across businesses and in many cases almost insignificant.

Therefore, for the purpose of this study, at first seems that there would be four types of taxes that really matter, the CIT, the VAT, the PIT and the contributions to SS. But the VAT is a special tax, an indirect one because it is a consumption tax (impacting only the final consumer) and consists of a system of partial payments charged as a percentage of the price. Due to its characteristics and deductibility it is considered a neutral tax for the companies regardless of how many transactions there is. In this sense the companies act as simple intermediaries of the government receiving and delivering the VAT to the authorities (European Commission, 2012) (47). With no direct impact to the companies the VAT becomes pointless to study, remaining only the CIT, PIT and SS as the only ones that are relevant for this dissertation.

The CIT is a tax that is charged directly to the undertaking’s income, not its assets, meaning that it will be based on the profit of the company within the referent year of activity. It is the most relevant tax for many companies and its impact is fundamental to the company’s activity. Currently this tax is 25 p.p. of its results (Deloitte & Associados, 2012) (48).

The two remaining taxes, the PIT and SS are a different kind of taxes because they are not taxed directly to the company’s activity but to the employees’. In terms of rates, the PIT can

vary between 10 p.p. and 46,50 p.p (Deloitte & Associados, 2012, p. 2) (48) while the SS is in normal cases a tax of 23,75 p.p (PwC Portugal, 2012) (49). But the PIT is a tax that is directly taxed at the employee's earnings, with the company being responsible to deliver it to the state, acting only as intermediary. Therefore it cannot be seen as a potential tax to defer.

Following this reasoning, only the SS can be considered to be deferred along with the CIT. Nevertheless, the SS will appear in the income statement grouped into the Social Charges (SC²⁵) rubric. This rubric also comprises additional charges incurred by the company referent to insurance expenses (typically correspondent to 1 p.p. of the salary) with employees. For the purposes of this study they shall be treated as SC as well, which will not interfere with the analysis once they are charged over the same base (employees' salary) and equal (in percentage) across companies.

Because of their characteristics and due to reasons previously explained, these two taxes (CIT and SC) will be the ones I will consider for the purpose of being deferred.

²⁵ From this point forward the abbreviation SC (displayed in brackets) will be used when referring to Social Charges. All abbreviations can be seen on the list of abbreviations.

Methodology

This dissertation aimed to assess the impact that a model of tax deferral would have on the companies' survival and on the government's revenues. Within this scope, it was proposed a model of tax deferral based on the factors that were considered pertinent to be study, in each case.

The analysis comprised the use of multiple sources of information due to the necessity of including many variables for examination. The methods used were mainly five:

1. The exploration of academic papers, journals, reports, newspapers and books.
2. The use of the internet to collect data, statistics and other web content such as definitions or concepts.
3. The use of real companies' statement income values.
4. The realization of two surveys, one targeted to the general public and other targeted to entrepreneurs.
5. The conduction of two interviews to two Portuguese experts, one in the area of entrepreneurship and the other on taxation.

With no previous studies on the subject, the gathering of the necessary information to define the basic concepts was carried on the initial phase of the study. This step, performed with the use of the first and second methods described earlier was necessary to clearly define the fundamental topics in study as so as to characterize the Portuguese context. For being used only as supporting knowledge for the development of the model, this step can be considered as a secondary data source.

The primary data source used includes all the five methods mentioned. First, for the model simulation, the collection of data and the research of reports were conducted allowing the gather of the necessary information to calculate the impact of the model on the government side. At this point the data collected was in some cases incomplete and some assumptions were forced to be made, nevertheless all the necessary measures were taken to guarantee the maximum veracity on the assumptions made in order to do not compromise the final results.

Then for the application to real companies it was necessary to collect the income statement of these and develop two surveys in order to better understand how relevant this deferral could be for the companies and how it is seen by the general public.

Finally, the interviews made were used throughout the model, with the main conclusions derived from these being applied not only as the premises of the model but also as a way to validate the hypothesis raised, being of crucial importance for the credibility of this study.

Tax Model with Deferral

The main purpose of simulating a tax model based on the deferral of the CIT and SC is to understand if it might help the startups' survival and possibly leverage their growth.

To do that, the model must take into account the influence those taxes have on the company's expenses because those taxes might not necessarily be big enough to cause any special impact on the firm's survival or the failure of the company might not be related with the tax deferral at all but with other reasons inside the company or in the marketplace.

Finally, another goal of this model is to assess the expected impact on the government side, because the possible earnings of the government and the society in general might or might not compensate the risk associated with the model. In this sense another aspect to consider is the unemployment generated by the failed companies which increases the social security expenses and reduces the buying power of the unemployed workers.

This model was constructed under several norms and under several eligibility criteria, but all validated with experts in the subject, namely Dr. José Silva Jorge²⁶ and Dr. Francisco Banha, with their opinions being expressed in appendix 2.

The Model

The model is intended to be simple, comprising four main focus points:

1. The deferral will be made on the CIT and SC taxes and no other tax is supposed to be deferred in this model.
2. The companies will not pay these taxes for a two year period since the year of their creation.
3. Those taxes shall start to be paid on the third year of activity. On that year companies are supposed to pay the value of the taxes they were meant to pay that year plus 25 p.p. of the value of the taxes of the first year of activity. The same logic applies to the

²⁶ Dr. José Silva Jorge was also interviewed within the purpose of this study. All the information regarding Dr. José Silva Jorge's opinion inserted within this dissertation is based on the interview made which was transcript and can be seen in appendix 2, interview 1.

following years until the deferred taxes are totally paid, with the taxes of the second year starting to be paid after the taxes of the first year being already paid. With this logic, the taxes of the first year are supposed to be totally paid on the sixth year of activity and the taxes of the second year should be totally paid at the end of the tenth year.

4. If the startup wishes, it is able to dismiss the deferral or repay the amount in debt before the due time.

Eligibility Criteria

Eligible to be part of this deferral should be all the companies without exception as long as they are within the following criteria:

- The company should be a startup on its first year of activity. Existing companies are not eligible to take advantage of this deferral.
- They should be “genuine” startups²⁷, either owned by individuals only and/or registered investment funds, not by other companies.
- They should not have a tax base equal or above 100.000 € (see figure 31 in appendix 1). If they have, the deferral of taxes should not be applicable.

Similarities

There are already some situations where some of the taxes in study might be subject of deferral under special conditions.

The CIT, a tax that is dependent on the taxable profit of the company will always be a percentage of this profit. If the profit is equal to zero or negative, then the tax will not be charged, making the net profit equal to the profit before tax. In fact, the negative results can

²⁷ This concept was introduced by Dr. José Silva Jorge during the interview. Appendix 2, interview 1 displays more detailed information about this concept.

be deferred into the future and be deducted when the company has positive profits, making the payment of the tax of that profitable year lower.²⁸

The Social Security contributions have as well some cases of exemption during some limited periods of time and in some special cases. These can be (Direcção-Geral da Segurança Social, 2012) (50):

- First job and long-term employment
- Employment of prisoners
- Rotation employment-training
- Recovery of inland regions

Although both cases (of the CIT and SC) are relevant, the SC becomes particularly important for this study since the purpose of this dissertation is to understand if the deferral of the startups' taxes might help their survival. What is expected to happen is that if they are not in difficulties (and have high profits), then a deferral of the taxes might help them expand but will have no impact on the survival (once they would survive on their own already), but on the other hand, if the startup is in difficulties with profits of zero or negative results, then the company is already able to differ the CIT into the future making the model inconsequent for this tax but not for the SC.

Possible problems

The possible problems that might arise from this model, excluding the extra bureaucracy for the companies and fiscal agents, could be related with two main topics, the competition issues and the possibility of fiscal evasions²⁹.

The competition issues might arise from the existing companies feeling somehow jeopardized in favor of the new incoming startups. This argument is refused by evidence,

²⁸ *"Income tax: value of the tax in the correspondent period, calculated based on the accounting values considering the definitive differences. It can be negative – tax in favor of the state – or positive – sum susceptible to be recovered by the entity."* (Comissão Normabilização Contabilística, 2012) (88)

²⁹ Remember that fiscal or tax evasion is *"an illegal practice where a person, organization or corporation intentionally avoids paying his/her/its true tax liability"* (Investopedia ULC., 2012) (80)

with the Portuguese government already providing many incentives that could also be seen as a distortion of the competition. Some of these incentives are managed by the National Strategic Reference Framework (NSRF³⁰), in Portuguese QREN – Quadro de Referência Estratégico Nacional that defined three systems of incentive in the areas of technological development, innovation and internationalization of the SMEs (QREN, 2011) (51) and if these incentives are seen as simple incentives so as a model of tax deferral should be seen as well. Moreover, Dr. José Silva Jorge and Dr. Banha's opinion is opposed to this argument. Dr. José noticed that startups will not be in direct competition with the big companies (because these compete among themselves) and the new incoming firms do not have the resources and conditions to compete directly with them, while Dr. Banha referred that if the incentives are targeted specially to innovative companies, these will be creating a new market that didn't existed before therefore the competition issues are irrelevant (see interviews 1 and 2 in Appendix 2).

The fiscal evasion option is based on mainly two possibilities, the first would be the case of entrepreneurs creating startups only to take advantage of the fiscal benefits, closing the firm when they stop having those benefits to start another firm and be covered by the benefits again. This could be controlled with legislation because what happens is that the companies have a debt to the state and if a firm showing positive performance indices closes for no apparent reason then the debt should continue to be demanded to the company's founders with these being limited to open new businesses. But if the firm does show signs of not having a chance to survive then the state should bear the debt as a cost of the model. For this case the solution will always be based on legislation and inspection.

The second possibility, introduced by Dr. José Silva Jorge during the interview was that big multinationals could create new companies and transfer the profits to them in order to lower their taxes. This is easily refused because one of the eligibility criteria is exactly to be a startup created by individuals and not other companies, restraining heavily this possibility which is also limited by the maximum taxable base until which the startups can defer their

³⁰ From this point forward the abbreviation NSRF (displayed in brackets) will be used when referring to National Strategic Reference Framework. All abbreviations can be seen on the list of abbreviations.

taxes (with startups having more than 100.000 € in taxable base not being able to defer them). So this possible problem can be contained with these eligibility criteria.

Legislation

According to Dr. José Silva Jorge (see interview 1 in Appendix 2), a model of tax deferral is not included in the Portuguese legislation and if it was to be implemented, the legislation would have to change in order to comprise with the needed conditions of the model.

These changes to the legislation, the requirements and the specificities needed to do so are not in the scope of this dissertation, but they are here acknowledged as fundamental to the implementation of this model.

Application of The Model

Like previously mentioned, the model will affect directly the companies and the government. Therefore it is crucial to understand the impact it might have on both.

This section will comprise those two analyses, stating the main conclusions derived from each. The calculations made for the impact on the government side are more subjective because they depend on various assumptions that inevitably will condition the final result.

On the companies' side, the calculations are not dependent on assumptions since real companies were used. The main limitation on this side is the use of a small sample of companies and the lack of information some of them have. In here is important to stress the difficulties on accessing the companies' information because people normally avoid talking about their failures or don't share information for confidentiality reasons.

Due to its complexity, the detailed explanation of the calculations is displayed in appendix 3, while here only the main conclusions will be shown.

On the government side we analyze the impact of the CIT, the SC and also the impact of unemployment (not only the direct costs but also the loss of buying power resultant of it). All the factors are analyzed under three scenarios (a realistic, an optimistic and a pessimistic) plus the initial situation without model.

The "no model" scenario is simply the current situation, where the companies do not have the possibility to defer their taxes and have to pay them at the correspondent year of incurrence

The remaining ones already account for the possibility of deferral. The "realistic model" is the situation where is assumed that the companies will only fail at the market failure rate instead of the startups' failure rate. The "optimistic model" assumes no failure among companies and that they would actually grow by 20 p.p. a year. Finally, the "pessimistic model" is an equal scenario to the "no model" situation except the state will lose some taxes that were deferred. The detailed information about the constitution and assumption of these models is displayed on the appendices' section.

CIT impact on the government side

Regarding the CIT, table one³¹ gives a clear idea of the situation under the four scenarios.

Table 1

	Resumed Table (CIT)				
	CIT Received	CIT to be Received	CIT Lost	Total	Difference to No Model
No Model	3.041.761.882,96 €	- €	- €	3.041.761.882,96 €	-
Realistic Model	3.088.839.570,03 €	1.468.110.524,61 €	275.478.298,58 €	4.281.471.796,06 €	1.239.709.913,10 €
Optimistic Model	4.685.597.210,05 €	1.646.392.752,79 €	- €	6.331.989.962,84 €	3.290.228.079,88 €
Pessimistic Model	1.811.458.671,69 €	1.230.303.211,26 €	645.241.222,78 €	2.396.520.660,18 €	- 645.241.222,78 €

It can be seen that in the “no model” situation, the tax is paid when it is incurred, therefore there is no CIT to be received or lost. For the other scenarios this does not happen because the tax is deferred and there is the risk of it not being paid. On the “optimistic model”, there is no CIT lost because it is assumed that on an optimal situation no company would fail (on appendix 3 is shown in detail all the criteria used).

The values displayed show that the worst case would result in a loss of 645.241.222,78€, while on the best case, the additional gain would be of 3.290.228.079,88€ (a value more than 6 times higher than the possible loss).

An interesting observation is that although the CIT to be received shows a high value in the scenarios with deferral (always over 1.000.000.000€) which is not in the best interest of the state (because it is money to be received and not received yet), the CIT already received by the state on the realistic and optimistic situations is superior to the total CIT received on the “no model” situation. In other words, at the end of the seventh year, with the exception of the pessimistic situation, the risk of not receiving the CIT deferred is already compensated by the CIT received.

The total is achieved by adding the CIT already received and the CIT to be received, deducing the CIT lost.

The “CIT lost” rubric shows the total CIT which will not be recovered by the state because it is the debt the failed companies had at the time of their failure and is borne by the state.

³¹ These are the final values that were achieved after an intense process of calculation which is explained in detail on Appendix 3, Part 2 - Model for the CIT, Government Side

Nevertheless, this value is not that significant on the realistic model accounting for about 6,43 p.p. while on the pessimistic case its significance increases to the value of approximately 26,92 p.p. of the total.

SC impact on the government side

Table number two³² displays the final results regarding the SC's impact on the government side.

Table 2

Resumed Table (SC)					
	SC Received	SC to be Received	SC Lost	Total	Difference to No Model
No Model	5.456.945.605,85 €	- €	- €	5.456.945.605,85 €	-
Realistic Model	5.349.569.860,82 €	2.437.315.957,41 €	588.535.740,82 €	7.198.350.077,41 €	1.741.404.471,57 €
Optimistic Model	8.787.511.210,28 €	2.750.912.811,46 €	- €	11.538.424.021,74 €	6.081.478.415,89 €
Pessimistic Model	3.414.458.582,22 €	2.042.487.023,63 €	1.106.632.972,62 €	4.350.312.633,23 €	- 1.106.632.972,62 €

In this case, the worst possible scenario would be a loss of 1.106.632.972,62€ to the state, while on the best situation it would have an additional gain of 6.081.478.415,89€, a value six and half times higher than the possible loss.

Once again, the values to be received are a significant percentage of the total, but although the values already received in the realistic model do not surpass the ones of the “no model” situation, they are really close (a difference of 107.375.745,03€) and surpassed on the optimistic situation. This means that the risk of deferral will be, on these scenarios, reduced.

The SC lost, although higher on total values than in the CIT case, will have an equivalent percentage of the total. In the pessimistic model accounting for 25,44 p.p. and in the realistic model accounting for 8,18 p.p. of the total.

It can also be seen that the SC account for a higher source of revenue than the expected CIT. This happens mostly for two reasons: when the firms have negative results they can already defers the CIT and on the initial years of existence the firms tend to have difficult

³² These are the final values that were achieved after an intense process of calculation which is explained in detail on Appendix 3, Part 3 – Model for the SC, Government Side

implementing itself on the market which decreases their profitability. On the other side, the SC must be paid whatever the performance of the company is. So if a company has negative results, the CIT can be deferred while the SC can't be, this results in the higher value of the SC in comparison the CIT as seen on table 2.

The overall effect, achieved by summing the values of table one and two is displayed on table three.

Table 3

Resumed Table (CIT + SC)					
	CIT + SC Received	CIT + SC to be Received	CIT + SC Lost	Total	Difference to No Model
No Model	8.498.707.488,80 €	- €	- €	8.498.707.488,80 €	-
Realistic Model	8.438.409.430,85 €	3.905.426.482,02 €	864.014.039,40 €	11.479.821.873,47 €	2.981.114.384,67 €
Optimistic Model	13.473.108.420,33 €	4.397.305.564,24 €	- €	17.870.413.984,57 €	9.371.706.495,77 €
Pessimistic Model	5.225.917.253,91 €	3.272.790.234,89 €	1.751.874.195,40 €	6.746.833.293,41 €	- 1.751.874.195,40 €

In this third table the behavior of the values is already expected. With the state having the possibility of winning up to 9.317.706.495,77€ and loosing up to 1.751.874.195,40€ in difference to the “no model” scenario.

The CIT and SC received on the realistic model is almost equal to the one without the model and in the optimistic case it surpasses it. The CIT and SC to be received continue to account for a big percentage of the total in all the models and the CIT and SC loss maintain an equivalent percentage as the ones seen on table one and two.

Although this third table shows the overall impact that a model of deferral would have on the state, it would be incomplete if it did not account for the indirect costs associated with it. These costs can be many³³ but for this study they will be focused on the unemployment costs (UC³⁴), namely the unemployment subsidy paid by the state to each unemployed worker and

³³ Like it was previously seen, the unemployment can lead to individual, social and governmental costs such as more crime, manifestations and even revolutions. Besides, like mentioned by Dr. Banha (see interview 2 in Appendix 2) there is still another important indirect cost of the failure of companies which is the demonstration effect.

³⁴ From this point forward the abbreviation UC (displayed in brackets) will be used when referring to Unemployment Costs. All abbreviations can be seen on the list of abbreviations.

the loss of buying power (LBP³⁵) that those workers have with the change from being employed to being unemployed, with this loss measured by the difference between the average payment received while working and the average subsidy received while unemployed. These are the only costs considered (although the others are recognized) because these are the only two possible to measure with evidence and are the ones that are a direct result of the failing of the companies.

Unemployment Costs & Loss of Buying Power

Table 4 and 5³⁶ show the additional unemployed subsidy costs borne by the state and the loss of buying power of those workers, respectively.

Table 4

Resumed Table (Unemployment Costs)	
Total Unemployment Costs	
No Model	742.095.923,25 €
Realistic Model	342.726.461,42 €
Optimistic Model	- €
Pessimistic Model	742.095.923,25 €

Table 5

Resumed Table (Loss of Buying Power)	
Total Loss of Buying Power	
No Model	2.006.563.126,98 €
Realistic Model	950.646.984,13 €
Optimistic Model	- €
Pessimistic Model	2.006.563.126,98 €

Once again, the optimistic situation assumes no failure, therefore there is no unemployment costs and loss of buying power resultant.

The “no model” and the “pessimistic model” since they are built under the same assumptions will have equal values.

³⁵ From this point forward the abbreviation LBP (displayed in brackets) will be used when referring to Loss of Buying Power. All abbreviations can be seen on the list of abbreviations.

³⁶ These are the final values that were achieved after an intense process of calculation which is explained in detail on Appendix 3, Part 4 – Model for the Impact caused by the Unemployment

The values displayed on the LBP are considerably higher than the UC, which can be somewhat biased since it is assumed that the earnings of the workers would be totally invested in the economy. Nevertheless, even if they weren't, the loss of the workers would be the one presented. This means that the workers support a higher total cost than the state, but in the end both entities are prejudiced.

The total cost of unemployment and loss of buying power are shown on table 6.

Table 6

Resumed Table (UC + Loss of BP)	
Total UC + Loss of BP	
No Model	2.748.659.050,24 €
Realistic Model	1.293.373.445,55 €
Optimistic Model	- €
Pessimistic Model	2.748.659.050,24 €

This sixth table shows how much money is lost as result of the failure of the companies. It comprises the subsidy paid by the state (an actual cost for the state) and the money that will not be present in the economy which could foster the economic development, allow the survival of more companies and jobs and would inevitably increase the state's revenues (because an increase in consumption also increases the tax revenue).

Finally, to understand what the global impact might be on the state's side, image 7 shows the impact of the CIT, SC, UC and LBP³⁷.

Table 7

Total Effect (CIT + SC - UC - VAT*LBP)				
	Total	% of 2010 GDP	Difference to No Model	% of 2010 GDP
No Model	7.345.266.124,52 €	4,53%	-	0,00%
Realistic Model	10.942.212.780,31 €	6,75%	3.596.946.655,79 €	2,22%
Optimistic Model	17.870.413.984,57 €	11,02%	10.525.147.860,05 €	6,49%
Pessimistic Model	5.593.391.929,12 €	3,45%	- 1.751.874.195,40 €	1,08%

³⁷ Although the LBP does not impact directly the government it will affect the economy as a whole, therefore to calculate the effect to the government it is calculated the taxation value based on the average value of the normal VAT practiced in Portugal from 2004 to 2009 (which is equal to 20,5%) (Wikipedia, 2012) (95), assuming that all the money would be spent and spent within the Portuguese economy.

In global terms the actual risk for the state would be of losing 1.751.874.195,40€, a value that is maintained from the impact of the CIT and SC because the impact of the UC and the LBP is calculated under the same assumptions (same failure rate and same number of workers) therefore its impact is null. On the best scenario, the state receive on addition up to 10.525.147.860,05€ (these values already account for the difference to the no model situation).

In terms of the percentage of the 2010 GDP³⁸, all situations show a considerable weight of the total, with the optimistic situation actually surpassing the two digit barrier. Although there is a big discrepancy on the extreme values (which can be justified by the fact that these are the best and worst scenarios possible), however the optimistic model might be subject to some criticism for being much optimistic and never actually achievable.

Therefore, considering only the realistic and pessimistic models as plausible alternatives, the gain or loss the government could obtain would vary between the gain of 3.596.946.655,79€ and the loss of 1.751.874.195,40€.

Deducing the possible loss to the plausible gain, the expected value is 1.845.072.460,40€ of additional gain, representing 1,14 p.p. of GDP in 2010. On the worst scenario the loss would be 1.751.874.195,40€ equivalent to 1,08 p.p. of the GDP in 2010.

So, the state does incur in some risk and can lose revenue, but it can also gain an expected amount higher than the possible loss. This loss represents around 1,08 p.p. of the GDP in a 7 year period (from 2004 to 2010) and in fact, each year that percentage is considerably lower. Nevertheless this is the cost that the state must incur in to support the startups and be a stakeholder in the business.

Finally, to better understand the impact on the state, society and individuals, table 8³⁹ shows the resumed situation (of all the years and models) regarding the number of companies failed and the unemployment resultant.

³⁸ The value of the GDP in 2010 is 162.097.605.500,00€ (PORDATA, 2012) (61)

³⁹ These are the final values that were achieved after an intense process of calculation which is explained in detail on Appendix 3, Part 5 – Resumed Impact on the Number of Companies and Unemployment

Table 8

Year of Creation	Companies Dissolved / Unemployment				
	Companies Created	Companies Failed	Existent	Existent (%)	Unemployment
No Model	155.709	74.436	81.273	52,20%	375.427
Realistic Model	155.709	32.340	123.369	79,23%	170.952
Optimistic Model	155.709	-	155.709	100,00%	-
Pessimistic Model	155.709	74.436	81.273	52,20%	375.427

Once again the “no model” case will share the same values of the “pessimistic model” (for sharing the same assumptions) while the “optimistic” model will assume no failure at all.

There is a big difference in terms of the number companies failed from the “realistic” case to the “no model” one, clearly seen by the percentage of still remaining companies that goes from 52,20 p.p. (barely more than half) to 79,23 p.p.

The number of unemployed workers is also considerably smaller on the “realistic” situation, accounting for less than half than the unemployment verified on the “no model” situation. This relation was expectable once they are the basis from the unemployment costs and loss of buying power seen before, having the same proportionality.

Startups' Impact

In this section, real startup cases are meant to be addressed. The startups analyzed were seven, four failed companies and three still existent. Although it is important to see the impact that a model of deferral would have on the companies, it was difficult to obtain the necessary information because, like mentioned before, people tend to avoid talking about their failures or in some cases they cannot do it for confidentiality reasons, resulting in a small sample of companies available.

The number of employees and the effect of the unemployment were excluded of this analysis for difficulties accessing information (for confidentiality reasons) and because the main goal was to assess the impact that taxes have on the firms' survival, while the effect of the unemployment is only an indirect consequence.

Other than failed companies, the (still) existing companies are interesting to study because they will allow us to see if in fact this deferral would help them not only to survive (they already did it) but also to expand because these companies also face difficulties on the initial years of activity.

Nevertheless, the failed companies are more relevant to be analyzed because by having already failed, they allow us to have the possibility to see in what way the taxes influenced their survival. Although the causes of failure of the companies were not analyzed individually the results achieved are conclusive enough regarding the weight taxation had.

Appendix 3, Part 6 – Startups' Analysis displays all the information regarding the companies' performance and all the calculations made in order to see the impact of the taxes on this sample of companies.

Table 9, in its turn, shows the resumed scenario of the savings companies would have with the deferral. It shows the absolute values of the savings by company and the values in percentage of the Net Income.

Table 9

Companies	Savings by Company per Year						
	(CIT + SC) Savings			(CIT + SC) Savings (%)			
	Year 1	Year 2	Total	Year 1	Year 2	Total	
Failed Companies	MTB	11.585,06 €	16.666,67 €	28.251,73 €	10,72%	7,02%	8,18%
	OON	30.424,95 €	- €	30.424,95 €	7,22%	0,00%	7,22%
	SATELLITE	- €	19.223,98 €	19.223,98 €	0,00%	6,00%	6,00%
	SMART ADVERTISING	- €	- €	- €	0,00%	0,00%	0,00%
Existent Companies	MOVE	4.771,61 €	6.886,13 €	11.657,74 €	26,99%	9,04%	12,42%
	WIDESCOPE	3.338,87 €	1.540,16 €	4.879,03 €	86,90%	307,90%	112,35%
	LUFTHAFEN	1.200,63 €	1.876,32 €	3.076,95 €	87,42%	17,08%	24,89%
Total	51.321,12 €	46.193,26 €	97.514,38 €	9,29%	7,17%	8,15%	

It is interesting to see that the higher value of taxes is paid by failed companies, while in percentage the values paid by existing companies represent much higher values. This situation is justifiable by the fact that failed companies show a much higher value (but negative) of the net income while the existent companies show a smaller net income (but positive). This is why the percentage of taxes paid by existent companies account for a much higher value.

In the face of these values it is difficult to see in what companies the deferral would have a higher impact. If, for the failed companies the value seems only account for a small percentage of the negative results, on the existing companies side, it seems that a smaller value accounts for a higher percentage of the net income. So, it is difficult to distinguish what companies would benefit the most, but what is observable is that all companies tend to gain with the deferral, some more than others depending on each case.

In total terms (considering all the taxes paid and all the net incomes), it can be seen that the savings will represent between 7,17 p.p. to 9,29 p.p per year, with the average per year of 8,15 p.p. This average does not include the SMART Advertising company because it did not paid any taxes nor does social charge therefore its inclusion would be biasing the results.

The main finding in percentage speaking terms is that the deferral of the CIT and SC would represent a financing of 8,15 p.p. per year of the net income, which is already a considerable value⁴⁰.

⁴⁰ In Dr. Banha's opinion, this value is an interesting value which can be used as a stimulus for the Portuguese to create their own business as well (see interview 2 in Appendix 2).

But, would this value of 8,15 p.p. of the net income, if deferred, be determinant for a firm's survival? This is an important question that has no direct answer, being dependent from case to case and would require the implementation of the model to be answered, but undoubtedly it is another source of funding (without interest attached) that the companies would have at their disposal, effortless.

Trying to understand until where taxes can be held responsible for a firm's failure and some other important indicators of the Portuguese reality two surveys were made (see Appendix 4 for detailed information about these surveys) with the interviews also comprising some specificities related with this subject.

In the opinion of Dr. José Silva Jorge, taxes are not the main cause of failure among companies but instead the market acceptance is. Still, he recognized that taxes could indeed increase the time of a company in the marketplace and therefore being able to understand their clients better, adapting their offer accordingly and consequently increase their chances of survival.

Dr. Banha's opinion also does not recognize taxes as the main cause of failure but instead, Dr. Banha points four main causes of failure being the market acceptance, the management team, financing issues and the size of the Portuguese market. The financing issues are mentioned as a cause of failure and accordingly to what was previously seen, taxes could indeed act as a source of funding.

The surveys made (that are divided in an open survey and a survey to entrepreneurs) show some interesting results. For this specific issue, only the first survey (displayed on appendix 4, survey 1) has useful data.

Question 5, from survey 1, asked the respondents to rate from 1 (very important) to 5 (less important) the five causes of failure presented, with these being "competition, taxes, high costs, low sales and lack of knowledge/expertise". The results demonstrate that taxes are in the third position (with the average value of 2,74) which shows that the entrepreneurs of this sample consider taxes as an important cause of failure of their company. Moreover 10

considered that this cause was very important, an equal value to the one that stayed in the first place as the main cause of failure.

This main cause of failure is occupied by the “low sales”, which corroborates what was referred by Dr. Jorge and Dr. Banha that the market acceptance plays the main role on a firm’s survival.

Question 6 and 7 aimed to understand if with the deferral of the CIT and SC, the company would have had more time to implement itself in the marketplace and survived/expanded.

The answers on question 6 show that almost 2/3 of the validated sample agreed that the company would have survived with more time. Regarding the answers on question 7, it is seen once again that more than 2/3 of the respondents agreed that the deferral of the taxes would help the company survive.

The interviews and the survey made do corroborate the initial predictions, showing that although the taxes in question are not crucial nor the main cause of failure of the companies, they still play an important role on the company’s survival.

A conclusion that can be easily derived is that, more than the contribution for the firms’ survival, this deferral might act as an incentive for people to start their own business and engage in the entrepreneurial activity (so important for the economic development of a country). This hypothesis emerged from the obvious verification that not paying any taxes while starting a business could be more than enough to encourage people to do it.

A hypothesis confirmed by Dr. Banha that even considered it as a positive discrimination⁴¹ for those who engage in entrepreneurial activities (having to bear the associated risk) and should be rewarded by it. Dr. José also recognizes that more than an advantage for the companies this model would be an incentive for the people to start their own business.

The second survey, targeted to the general public, does confirm this hypothesis as well. From the sample collected, 82,19 p.p. admitted that intend to create their own business one day,

⁴¹ A positive discrimination is a set of “policies and practices which favour groups (mainly ethnic groups and women) who have historically experienced disadvantages (usually in the fields of employment and education)” (Dictionary of Sociology, Positive discrimination, 2012) (98).

but 83,56 p.p. consider it is risky to start it in Portugal with 60,27 p.p. considering that that risk is a real inhibitor for that creation to succeed. This means that most of the people do have the desire to engage in entrepreneurial activities but the risk associated is a factor that inhibits them of doing so.

More clear is the recognition that the deferral of the CIT and SC would indeed be an incentive for the creation of a new businesses, with 84,93 p.p. sharing this opinion, an undoubtedly proof that this model might be used as an incentive for the fostering of entrepreneurship.

Evidences from the Model

The Risk

The risk could eventually be divided and analyzed separately between the risk for the state and the risk for the companies, but like mentioned before, the companies have nothing to lose with this model and so they have no risk associated.

Therefore, the only risk to be considered is the risk for the state and like it was previously seen, the risk will be basically the possibility of tax default by the failed companies. Still, this risk is reduced, not only because in a seven year period the possible loss on average per year is of 250.267.742, 20 € but because the possible gains more than surpass the risk of loss.

To better understand what is the actual level of risk for the state, knowing that the cost would at the most be equal to 250.267.742,20€, a value close to the line of credit created for SMEs, announced by Carlos Oliveira (the Portuguese secretary of state for entrepreneurship) which was set at 190.000.000,00€ and lower than the reinforcement made by the state in the insurance of credit lines for exportation, valued at 400.000.000,00€, both incorporated in the NSRF program (Dinheiro Vivo, Empresas, 2012) (52).

Recently⁴², the Portuguese Government announced the creation of a fund to help the companies that are in difficulties due to the economic crisis, solve their credit problems. This program created to “revitalize the companies” (in Portuguese, Programa de Revitalização das Empresas) comprises a total of 220.000.000,00€, a value really close to what was needed to implement the model of tax deferral (Diário Notícias, 2012) (53).

This, besides confirming the recognition by the state that the SMEs already need some extra support, also shows that the eventual losses in taxation the state might have are not high in comparison to the ones already spent in programs supporting SMEs.⁴³

The idea of low risk is corroborated by Dr. José Silva Jorge and Dr. Banha who both agreed that the risk is reduced and even mentioned that the state has more to win than to loose. This

⁴² The information was disclosed on the 20th of May of 2012.

⁴³ Notice that this point of view does not intend to defend that the programs within the NSRF should be substituted by this model but that the possible cost of the model is close to the costs of the programs already defined within the NSRF.

happens because even if the companies do not contribute directly for the CIT and SC, they are indirectly contributing for the economy, through the creation of jobs, acquisition of goods and services that will also increase the tax revenue (from VAT for example) that otherwise wouldn't exist. These are all factors that indirectly minimize the total risk burden by the state.

The Incentive

Although confirmed that the risk is reduced for the state, it still might not be sufficient for creating the necessary incentive to be implemented (especially in times of crisis where the budget availability is scarce).

Nevertheless, the evidence collected refute this possibility. Firstly and once again Dr. José Silva Jorge and Dr. Francisco Banha agreed that there is incentive for the state because in a similar reasoning as for the risk, if the state does not do nothing it will not gain nothing while the model will be contributing indirectly for the economic development and for the increase in revenues of other taxes as well.

This reasoning can be done for example, when considering the costs of unemployment resultant of the failure of the companies. Considering that the failure of companies will increase the unemployment levels that for its turn will increase the subsidy costs borne by the state and reduce the income level of the workers, there will be a decrease in consumption and consequently a decrease in the taxation revenues of the government.

These findings can lead to the opposite reasoning, that if the state abdicates of some part of the taxation revenues charged to the companies in their initials years of existence, then those companies could eventually survive, maintain more jobs, which would allow the unemployment costs not to increase nor affect the buying power of consumers, resulting in an increased taxation revenue for the state in the medium/long term. Exactly what was mentioned by Dr. Jorge and Dr. Banha, but seen in a macroeconomic perspective where many other entities directly or indirectly benefit from the startups' survival which in the end will be converted in benefits for the state.

Another incentive for the state is the incentive a model like this could have on the individuals. Like it was mentioned before, the deferral of taxes reduces the risk of starting a new business which could eventually result in the creation of new businesses by whom otherwise wouldn't do it due to the inherent risk.

This reasoning briefly resumes what the state have to gain in opposition to what it might lose, justifying the existence of a real incentive to the implementation of a model of tax deferral.

For the startups the incentive to adhere to the model is unquestionable since they do not have the minimum possibility of being prejudiced in any manner and the tax deferral is a clear way of being favored. Besides, the startups have the possibility of not deferring their taxes, being that way in the same situation they were.

So, there are clear incentives for the implementation of this model of tax deferral with all the intervenient (state, companies, individuals and the society as a whole) having something to gain with it.

The Benefits

For the startups the benefits are many, beginning with the incentive for entrepreneurs to start a business that wouldn't be started otherwise, lowering the risk and maybe solving the problem noticed by Valente (2011) (41) where the Portuguese entrepreneurs only bet on low risk business. The possibility of deferring the CIT and SC will obviously smooth the financial pressure acting as another source of funding (without interest) and therefore being able to eventually survive or even expand.

Other indirect benefits can be noticed such as the maintenance of the working force, the possibility to acquire new equipment, among others directly related with the company but there are also benefits to be extracted from a better financial liquidity such as the engagement on other actions like exportations, technological development and eventually increased brand value (nationally and internationally) and many other related benefits.

The benefits for the state will be related with the benefits associated with the firms' survival and although the state might have to abdicate of part of the revenues prevenient from the CIT and SC in the first years it is expected that this initial loss will be more than compensated from the increase of revenues from other sources and also the future revenues of CIT and SC.

There is also a decrease in the costs of unemployment which benefits the state as well. The referred positive discrimination will create incentive for the creation of new companies among entrepreneurs which will foster the economic development along with survival of the startups.

Economically the state will also benefit with the fostering of the companies, having less dependency from the outside, less importations and eventually less debt.

Bureaucratically, the benefits are also relevant. Currently the Portuguese government has acknowledged the necessity and interest in supporting SMEs through the creation of funds to support them (like with NSRF). But the evidence shows that the funds to do so are created and operated as they always were, firstly through the need of application by the companies and only after these are possible granted access to the fund, which increases the bureaucracy and complexity of the fund and also will not comprise all the companies that might have the necessity for support. With this model startups are allowed to keep the tax amounts that they otherwise would have to pay. Therefore, there is a simplicity benefit adjacent to this model.

Nonetheless, what typically happens in these cases is that after receiving the taxes the state will create funds to help the companies and only then the most promising ones will be helped, leaving the ones with difficulties the same way. For example, the SMEs credit line created within the scope of the NSRF states clearly that for the companies being eligible, they must have their fiscal and social security situations regularized (IAPMEI, 2010) (54). With this model all the companies would receive the help no matter their current state. This is a benefit if seen in the perspective that there is no relocation of the subsidies with these remaining with the companies being only dependent on their capabilities to survive, otherwise other companies might receive help instead, interfering with the natural course of the economy.

For the society (which will also impact the state), benefits related with less crime, less manifestations and better life quality might arise, among others.

Overall, knowing the risks, the benefits and the existence of incentives to create this model, apparently there are enough reasons for it to be implemented and all the intervenient tend to gain with it, having a very reduced or even no risk.

Conclusions

Summary

This study aimed to understand what would be the impact of a model of tax deferral within the Portuguese context, from two perspectives, on the startups' and on the government side.

It was proposed a model of tax deferral and its outcome was assessed. However, more than this assessment, the study allowed a comprehensive understanding of the startups and their environment.

Starting by understanding what a startup is, it was rapidly seen that they play a vital role in every country and that nowadays, more than ever, entrepreneurship is embedded within the concept of startup, with the recognition that entrepreneurship is crucial for the economic development.

Other than entrepreneurship, it was seen that bankruptcy is a concept associated with startups, with these fading at a fast rate during their initial years of existence, many due to inadequate financial resources and lack of funding. This notion of inadequate financial resources along with the evidence that taxes have economic effects corroborated the initial assumptions that tax deferral could indeed be used as a source of funding.

Moreover, within the Portuguese context, it was seen that, with a decreasing FDI, a demographic scenario where the consumption will be reduced, where the unemployment, the failure of companies, the increasing taxes and the difficulties accessing credit are a reality, all indicators tend to be favorable to the improved support of startups.

The application of the model validated its relevance, important contributions for the companies and little risk for the state being the main findings. In other words, it was confirmed that startups would benefit with the model and although not necessarily crucial for their survival, the deferral of taxes might have its importance. For the state, the risk would be reduced and it has more to win than to lose since, more than the possible gain with the survival of companies there are many other related benefits. The state does not only gain in future taxes but also on increased consumption by companies and individuals (that don't

get fired and loose buying power) and gain from less subsidy costs, among other sources of benefits.

Another important finding is that this model could also be used as an incentive for the creation of new companies by individuals that otherwise wouldn't consider it due to the inherent risk which is, this way, lowered.

The tendency verified in the Portuguese governments is of engagement in initiatives to support the companies, which confirms the necessity and interest in creating conditions for these to survive. Nevertheless the evidence shows that the ways created are the same as always, which are bureaucratic and based on criteria that will ultimately exclude some of the companies that also need support. With the model of tax deferral proposed, this does not happen, since there isn't a significant increase in bureaucracy and all startups are meant to be beneficiaries of this model.

The application of a model such as this one would certainly impact the enterprise sector, hopefully in a positive manner, contributing for the establishment of favorable environment for the creation of new startups and their survival. Nonetheless it would certainly be a controversial issue, criticized by the existing companies that don't fit the model, by the opposition parties that wouldn't conceive the idea of possible loss of tax revenues and probably from some individuals and entities.

Therefore, knowing the risks, the incentive and the benefits, the posing question is related to whether or not there is or will be a government that attempts to implement a model of tax deferral such as this one that certainly would create a new paradigm within the Portuguese enterprise sector.

Limitations

Although intend to comprise all the relevant aspects and be as detailed as possible, this dissertation faced some limitations that conditioned its development, namely:

- Lack of previous studies and theoretical reasoning
- Lack of detached information regarding startups and inconsistency across different sources of information
- Limited sample of real companies and information from these

The first limitation was felt at the beginning of the study, with the difficulty in finding previous studies. The topic in analysis seemed not to be covered in the past academic literature, therefore the development of the model of tax deferral was made from basis without no similar source for ideas or comparison. Within this lack of information, there was also a lack of theoretical background for the study. Being a practical model, there was not much theory to be used or developed. Moreover and once again for being practical, the model is difficult to be study in a general context, since its significance and importance are dependent on the reality of each country and the situation of the companies.

When searching for data and information regarding the startups in Portugal, the difficulties and limitations found were many. On general terms these could be categorized into two, the lack of detached information, being extremely difficult to find information regarding only startups (usually the data found was referent to the all companies) and some inconsistency found between different sources regarding the same information. The methods used to diminish these asymmetries and inconsistencies are explained in the appendixes but were in general the use of the most reliable sources and the use of assumptions based on the average of past data.

The application of the model to the companies was made using real data. Nevertheless this data was, in some cases incomplete and, more than that, it was only applied to seven companies, a very small sample when comparing to the number of existent companies, which must necessarily be recognized as a significant limitation of the study.

Future Research

Regarding the future research, some recommendations will obviously be based on the limitations recognized above in order to diminish their impact on future studies, while others will be made in order to expand the scope of the study.

Some of the main limitations were related with the lack of data, of previous studies and of detached information. About these there isn't much to be done since they are dependent on external factors. However, the search for similar practices outside Portugal could be important to find a source of comparison.

Concerning the sample size of real companies, there is space for improvement and increasing the sample to a more significant number is a clear recommendation for future researches.

The calculation of the model was made according to three different scenarios made under different assumptions. Future researches could incorporate more scenarios with different assumptions, this way more possibilities could be assessed and lower the uncertainty regarding the impact of the model for the state.

For future researches, other possibilities could rely on the alteration of the eligibility criteria, understanding if there were any benefits for the companies and the state with the change. For example, studying the application of the model only to companies financed with venture capital or, in the other hand, the application of the model to all the companies in difficulties.

Other than the eligibility criteria, another interesting development of the study would be to analyze if an increase of the years of deferral would have any impact on the firms' survival as so as a change in the repayment method.

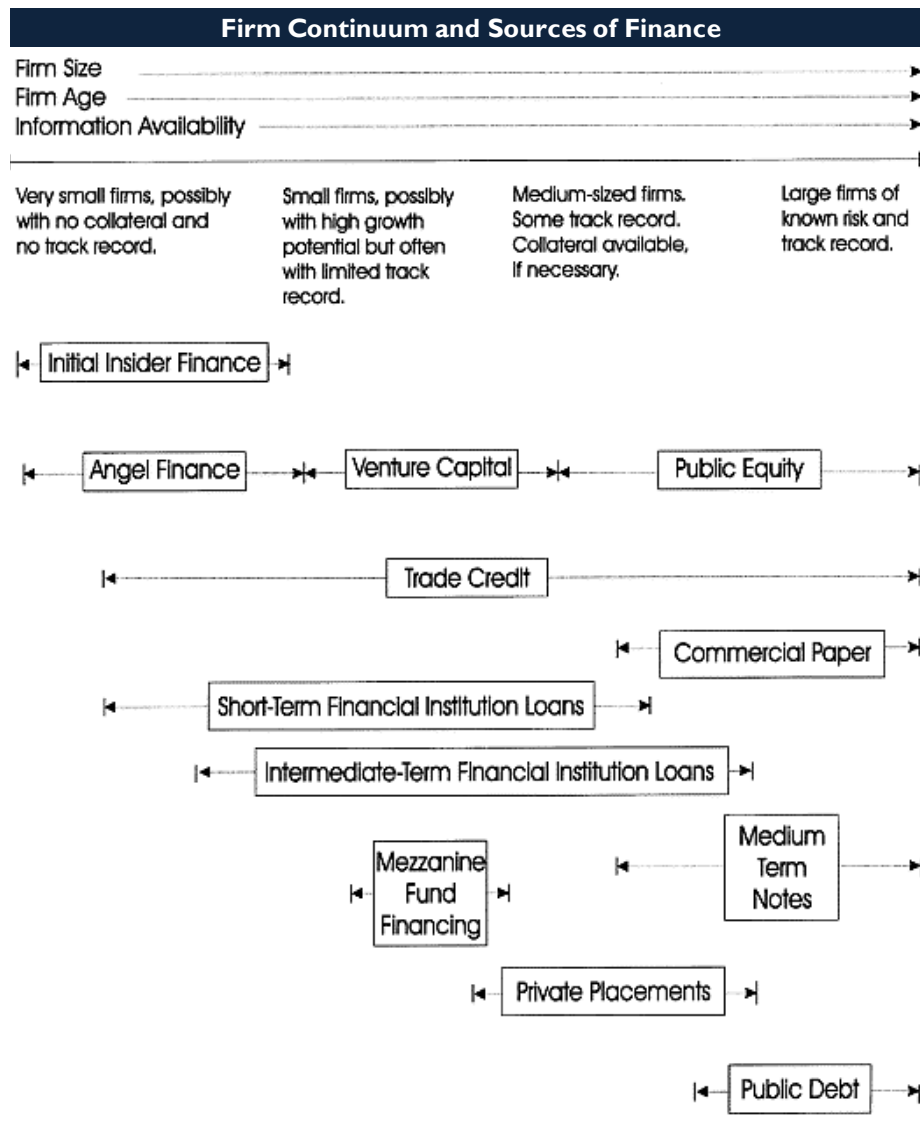
In short, the future studies could focus on:

- Investigate similar practices outside Portugal
- Increase the real companies' sample size
- Increase the simulation of scenarios under different assumptions
- Estimate the impact of different eligibility criteria
- Assess the impact of increasing the years of deferral and the impact of a different repayment method.

Exhibits

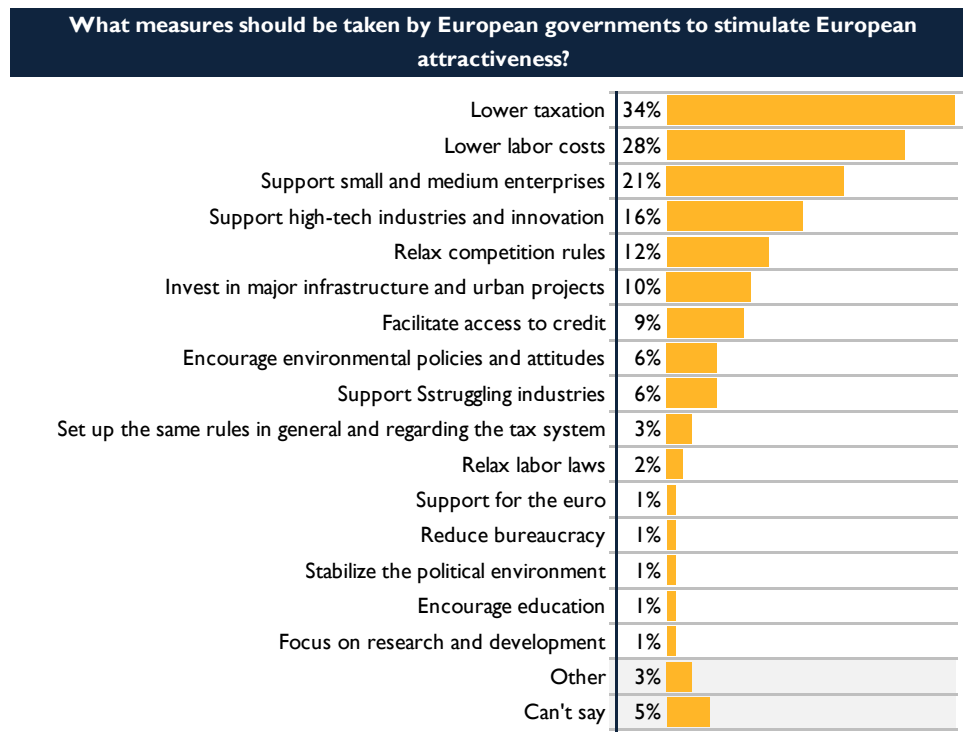
Appendix 1 - Figures

Figure 1 – Firms’ Sources of Finance



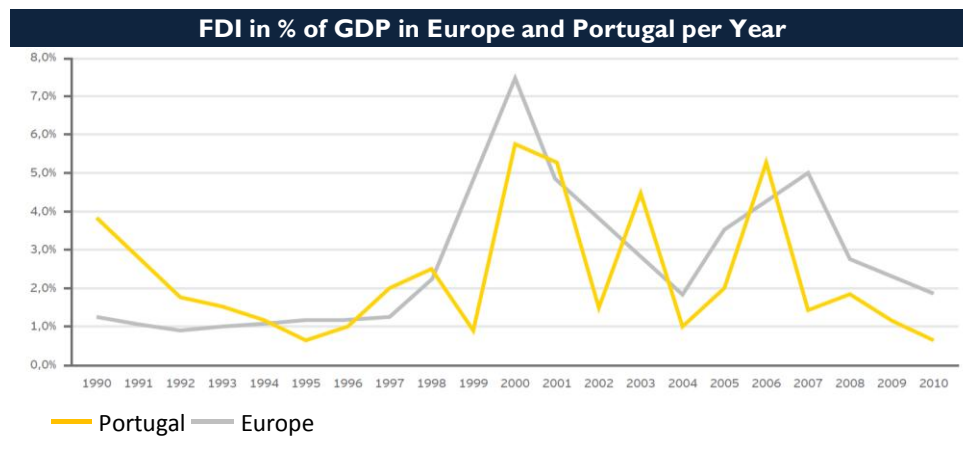
Source: (Berger & Udell, 1998) (2)

Figure 2 – Measures to be taken by European Governments to stimulate attractiveness



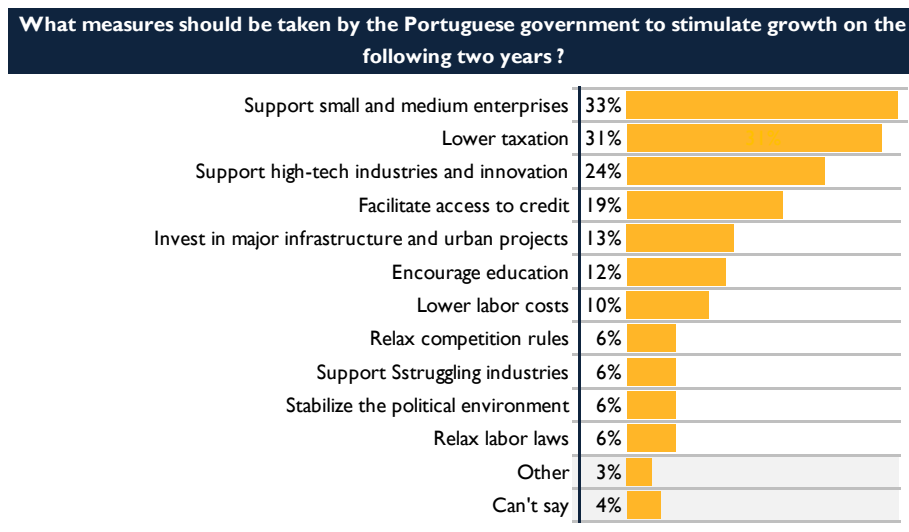
Source: (Ernst & Young , 2011) (30)

Figure 3 – FDI in Percentage of GDP in Europe and Portugal



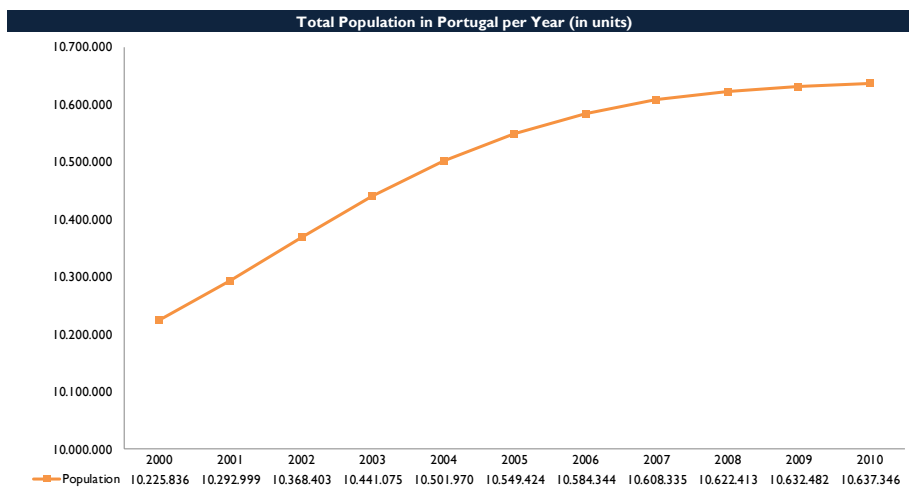
Source: (Ernst & Young, 2011) (31)

Figure 4 - Measures to be taken by the Portuguese Government to stimulate growth



Source: (Ernst & Young, 2011) (31)

Figure 5 – Total Population in Portugal



Source: (PORDATA, 2011) (55)

Figure 6 –Population in Portugal by Age

Total Population in Portugal by Age per Year (in units)

Year	Total	0-14		15-64		65 +	
		Absolut Value	Percentage	Absolut Value	Percentage	Absolut Value	Percentage
2000	10.225.836	1.647.677	16,11%	6.922.078	67,69%	1.656.082	16,20%
2001	10.292.999	1.640.418	15,94%	6.959.653	67,62%	1.692.929	16,45%
2002	10.368.403	1.642.957	15,85%	7.003.390	67,55%	1.722.057	16,61%
2003	10.441.075	1.647.375	15,78%	7.045.232	67,48%	1.748.469	16,75%
2004	10.501.970	1.648.217	15,69%	7.077.786	67,39%	1.775.968	16,91%
2005	10.549.424	1.645.834	15,60%	7.103.270	67,33%	1.800.320	17,07%
2006	10.584.344	1.640.934	15,50%	7.124.051	67,31%	1.819.359	17,19%
2007	10.608.335	1.633.245	15,40%	7.135.867	67,27%	1.839.224	17,34%
2008	10.622.413	1.625.922	15,31%	7.134.471	67,16%	1.862.020	17,53%
2009	10.632.482	1.619.804	15,23%	7.124.997	67,01%	1.887.681	17,75%
2010	10.637.346	1.612.176	15,16%	7.108.866	66,83%	1.916.305	18,01%

Source: (PORDATA, 2011) (56)

Figure 7 – Total Population in Portugal by Gender

Total Population in Portugal by Gender per Year (in units)					
Year	Total	Men		Women	
		Absolut Value	Percentage	Absolut Value	Percentage
2000	10.225.800	4.934.500	48,26%	5.291.400	51,75%
2001	10.293.000	4.969.800	48,28%	5.323.200	51,72%
2002	10.368.400	5.009.600	48,32%	5.358.800	51,68%
2003	10.441.100	5.048.300	48,35%	5.392.800	51,65%
2004	10.502.000	5.080.300	48,37%	5.421.600	51,62%
2005	10.549.400	5.105.000	48,39%	5.444.400	51,61%
2006	10.584.300	5.122.800	48,40%	5.461.500	51,60%
2007	10.608.300	5.134.400	48,40%	5.474.000	51,60%
2008	10.622.400	5.140.700	48,39%	5.481.700	51,61%
2009	10.632.500	5.145.400	48,39%	5.487.100	51,61%
2010	10.637.300	5.147.400	48,39%	5.489.900	51,61%

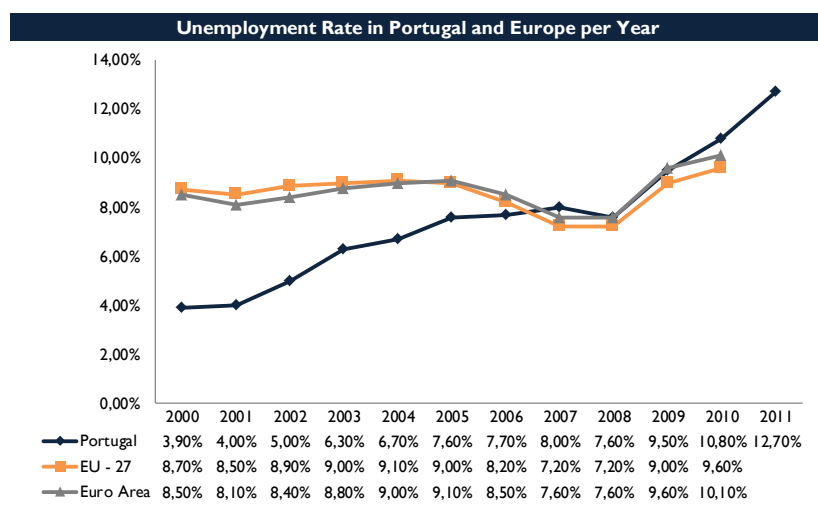
Source: (PORDATA, 2011) (55)

Figure 8 – Economically Active Population in Portugal

Economically Active Population in Portugal by Gender per Year (in units)					
Year	Total	Men		Women	
		Absolut Value	Percentage	Absolut Value	Percentage
2000	5.226.400	2.854.500	54,62%	2.371.900	45,38%
2001	5.325.200	2.901.300	54,48%	2.423.900	45,52%
2002	5.407.800	2.937.800	54,33%	2.470.000	45,67%
2003	5.460.300	2.947.900	53,99%	2.512.300	46,01%
2004	5.487.800	2.957.000	53,88%	2.530.800	46,12%
2005	5.544.900	2.963.500	53,45%	2.581.300	46,55%
2006	5.587.300	2.984.400	53,41%	2.602.900	46,59%
2007	5.618.300	2.986.000	53,15%	2.632.200	46,85%
2008	5.624.900	2.991.400	53,18%	2.633.400	46,82%
2009	5.582.700	2.948.900	52,82%	2.633.900	47,18%
2010	5.580.700	2.931.800	52,53%	2.648.900	47,47%

Source: (PORDATA, 2012) (57)

Figure 9 – Unemployment Rate in Portugal and Europe



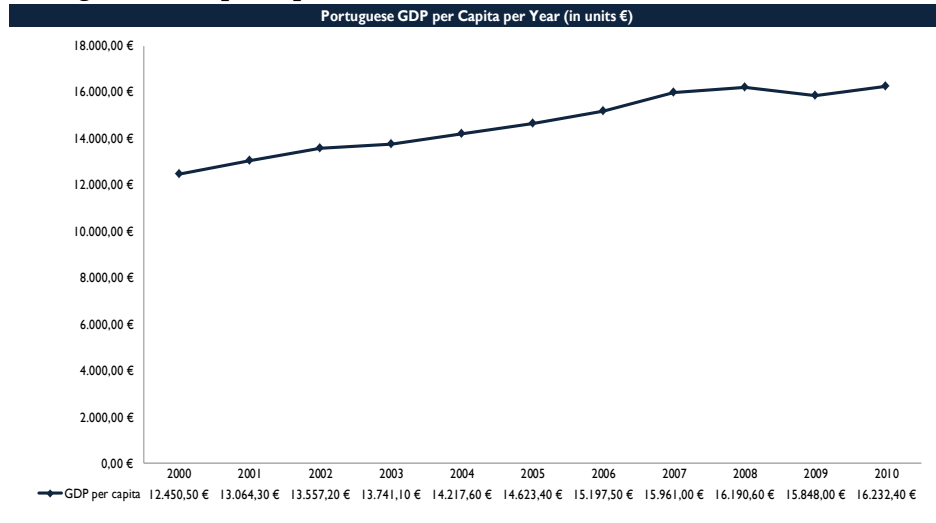
Source: (PORDATA, 2012) (58) ; (Eurostat, 2012) (59)

Figure 10 - Unemployment in Portugal

Unemployment in Portugal by Gender per Year (in units)					
Year	Total	Men		Women	
		Absolut Value	Percentage	Absolut Value	Percentage
2000	205.500	89.300	43,45%	116.200	56,55%
2001	213.500	91.600	42,90%	122.000	57,14%
2002	270.500	121.400	44,88%	149.100	55,12%
2003	342.300	160.900	47,01%	181.400	52,99%
2004	365.000	172.900	47,37%	192.200	52,66%
2005	422.300	198.100	46,91%	224.100	53,07%
2006	427.800	194.800	45,54%	233.100	54,49%
2007	448.600	196.800	43,87%	251.800	56,13%
2008	427.100	194.300	45,49%	232.700	54,48%
2009	528.600	261.300	49,43%	267.400	50,59%
2010	602.600	287.300	47,68%	315.300	52,32%

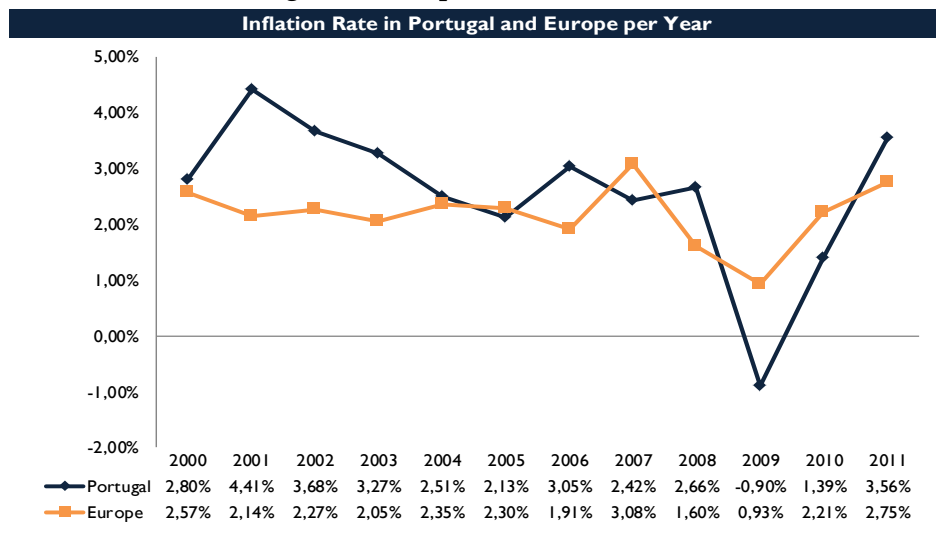
Source: (PORDATA, 2012) (60)

Figure 11 – Portuguese GDP per capita



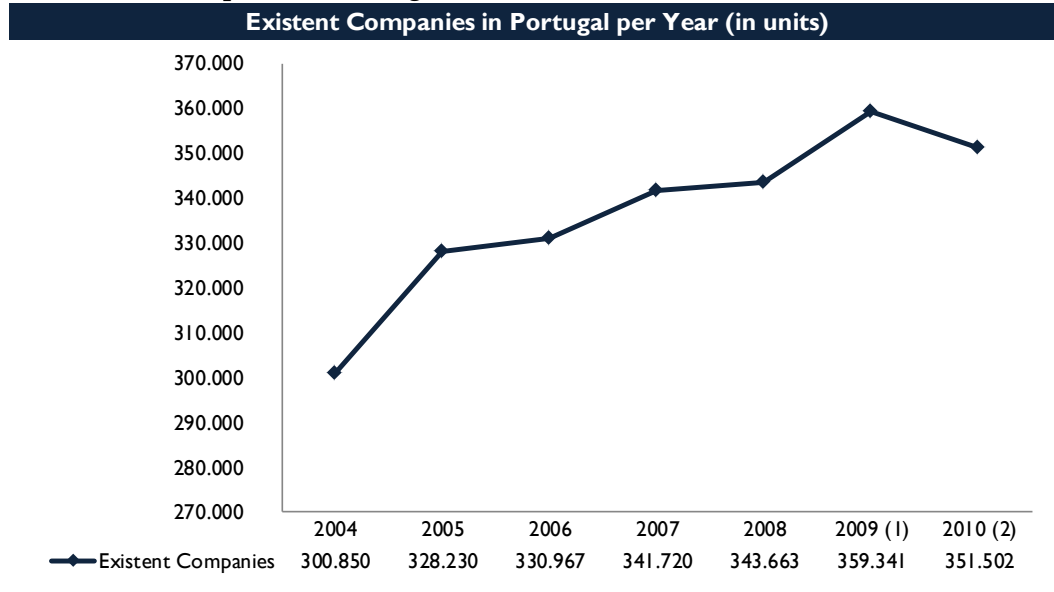
Source: (PORDATA, 2012) (61)

Figure 12 – Inflation Rate in Portugal and Europe



Source: (Triami Media BV, 2012) (62) (Triami Media BV, 2012) (63)

Figure 13- Existent Companies in Portugal

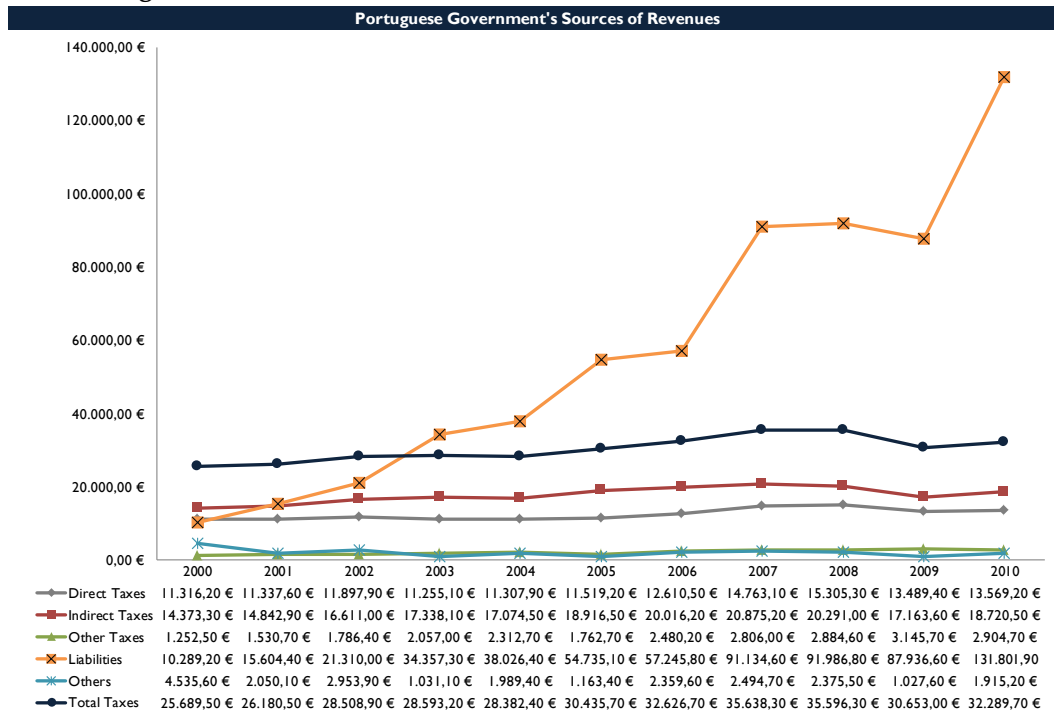


1 - Because the sample was limited to October of 2009, this value was proportionally changed to incorporate the number of new companies created (displayed on the previous table)

2 - This value was calculated based on the average of the two preceding years

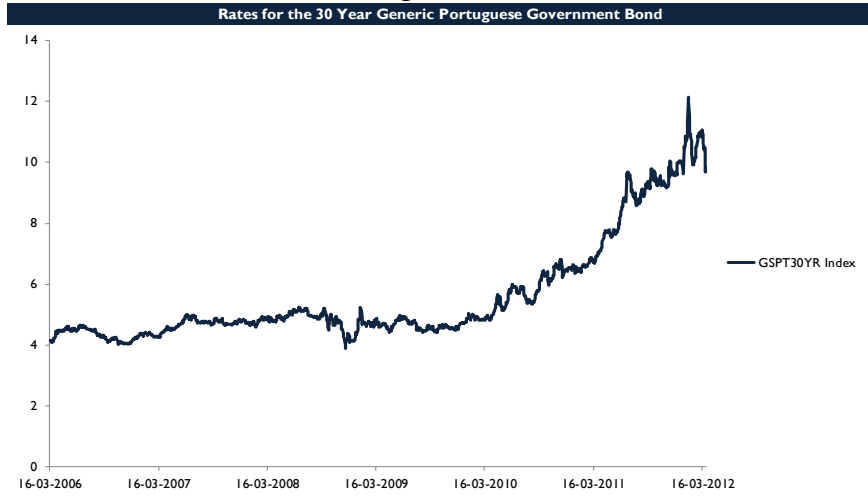
Source: (Gabinete de Estratégia e Planeamento (GEP), 2011,p. 7) (64)

Figure 14 – Portuguese Government’s Sources of Revenues



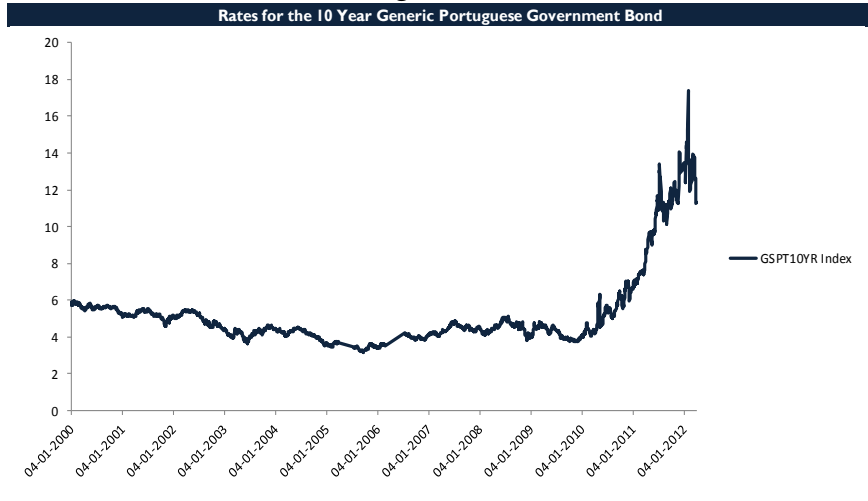
Source: (PORDATA, 2011) (65)

Figure 15 – Rates for the 30 Year Generic Portuguese Government Bond



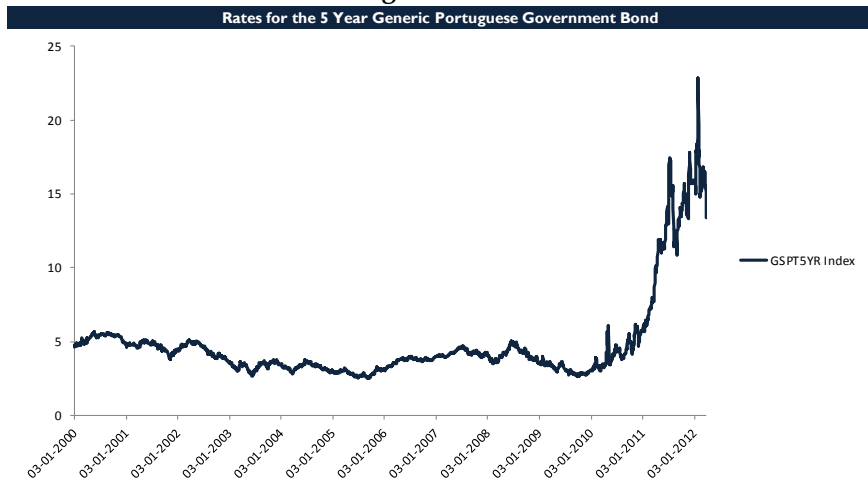
Source: (Bloomberg Finance L.P., 2012) (66)

Figure 16 - Rates for the 10 Year Generic Portuguese Government Bond



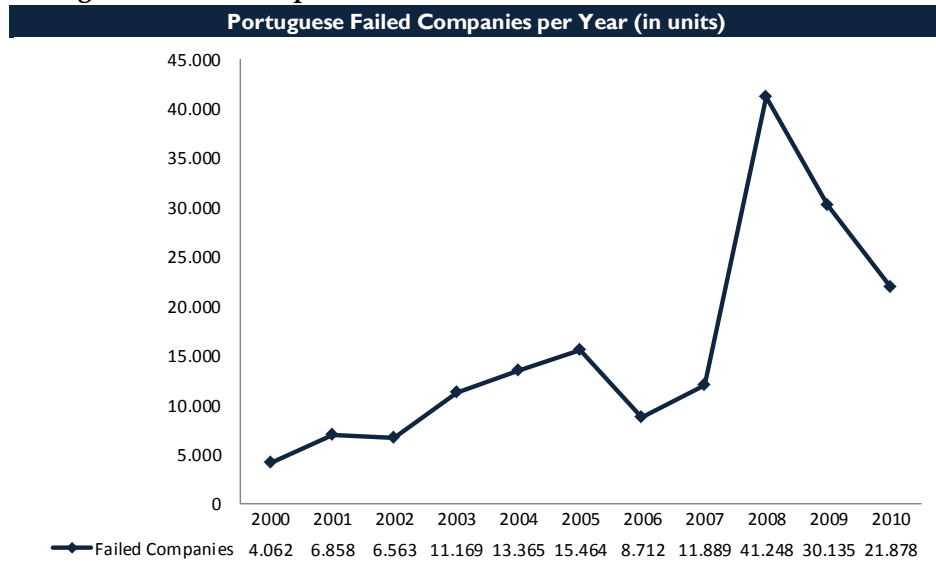
Source: (Bloomberg Finance L.P., 2012) (67)

Figure 17 - Rates for the 5 Year Generic Portuguese Government Bond



Source: (Bloomberg Finance L.P., 2012) (68)

Figure 18 – Portuguese Failed Companies



Source: (PORDATA, 2011) (69)

Figure 19 – World’s Bank Ease of Doing Business Rank

World's Bank Ease of Doing Business Rank	
Rank	Country
1	Singapore
2	Hong Kong SAR, China
3	New Zealand
4	United States
5	Denmark
6	Norway
7	United Kingdom
8	Korea, Rep.
9	Iceland
10	Ireland
...	...
25	Taiwan, China
26	Switzerland
27	Lithuania
28	Belgium
29	France
30	Portugal
31	Netherlands
32	Austria
33	United Arab Emirates
34	Israel
35	South Africa
...	...
180	Eritrea
181	Congo, Rep.
182	Central African Republic
183	Chad

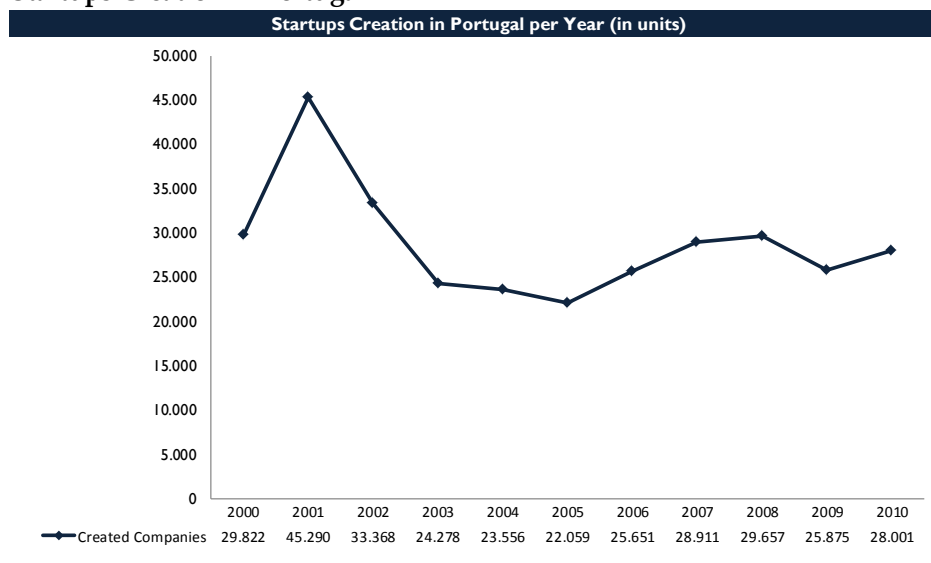
Source: (The World Bank, 2011) (39)

Figure 20 – Forbes’ Best Countries for Business Rank

Forbes’ Best Countries for Business Rank	
Rank	Country
1	Canada
2	New Zealand
3	Hong Kong
4	Ireland
5	Denmark
6	Singapore
7	Sweden
8	Norway
9	United Kingdom
10	United States
...	...
15	Netherlands
16	Estonia
17	Luxembourg
18	France
19	Mauritius
20	Israel
21	Germany
22	Portugal
23	Iceland
24	Chile
25	Slovenia
26	Taiwan
27	Japan
...	...
125	Iran
126	Cote d'Ivoire
127	Mauritania
128	Haiti
129	Cameroon
130	Venezuela
131	Angola
132	Burundi
133	Zimbabwe
134	Chad

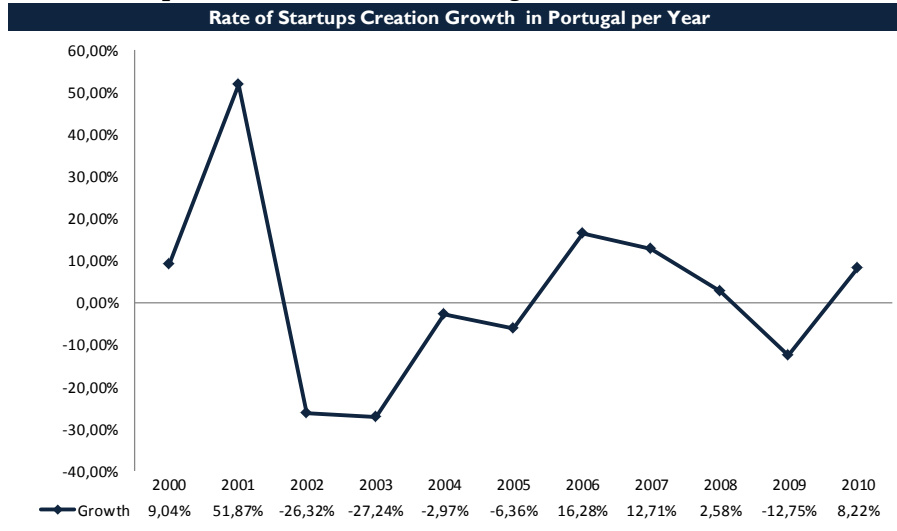
Source: (Forbes, 2011) (40)

Figure 21 – Startups Creation in Portugal



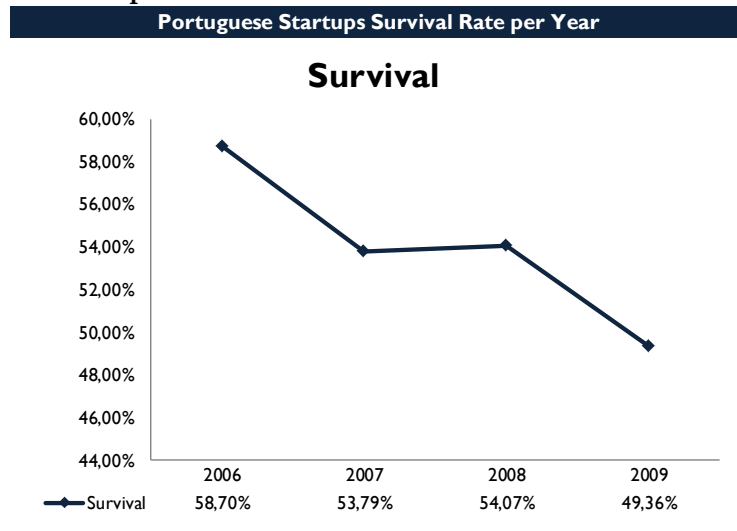
Source: (PORDATA, 2011) (70)

Figure 22 – Rate of Startups Creation Growth in Portugal



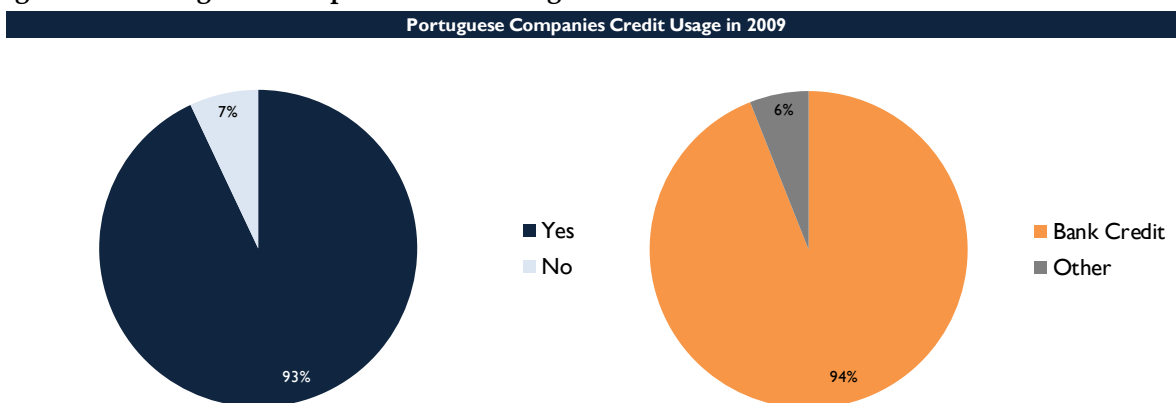
Source: (PORDATA, 2011) (70)

Figure 23 – Portuguese Startups Survival Rate



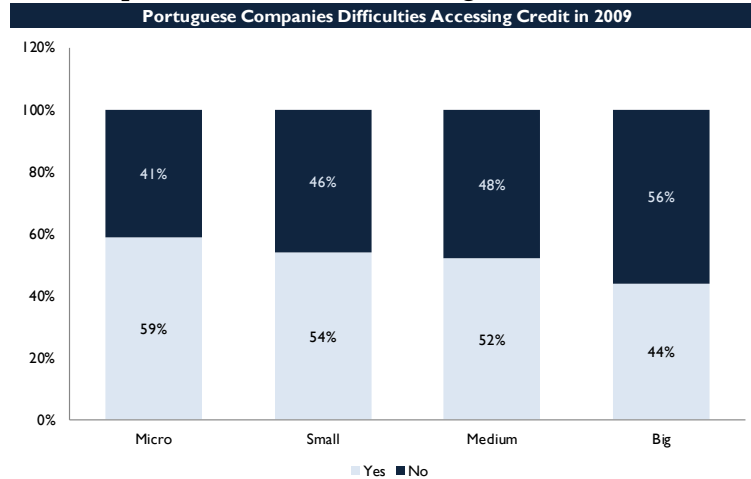
Source: (INE, 2011) (71)

Figure 24 – Portuguese Companies Credit Usage



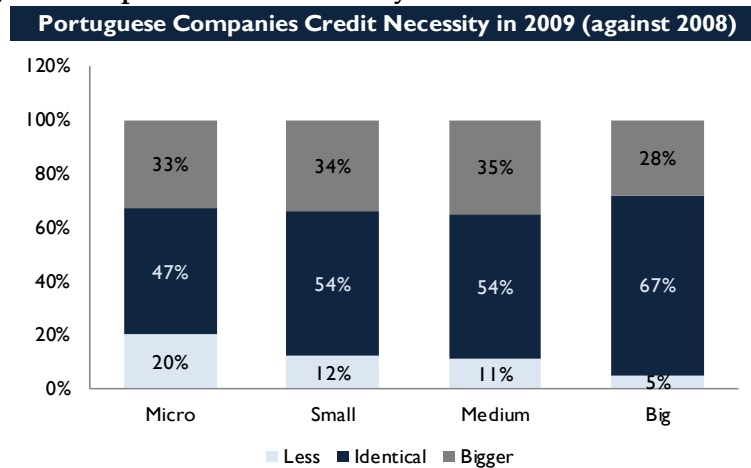
Source: (AIP-CE, 2009, p. 2) (72)

Figure 25 – Portuguese Companies Difficulties Accessing Credit



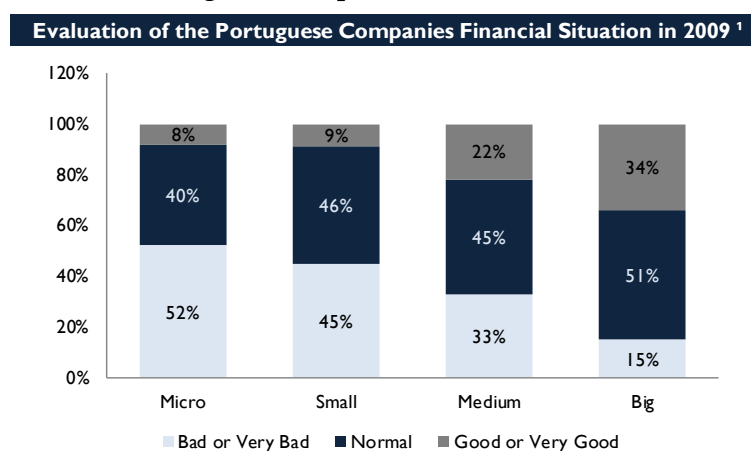
Source: (AIP-CE, 2009, p. 5) (72)

Figure 26 – Portuguese Companies Credit Necessity



Source: (AIP-CE, 2009, p. 9) (72)

Figure 27 – Evaluation of the Portuguese Companies Financial Situation



1- Evaluation made by the companies themselves

Source: (AIP-CE, 2009, p. 10) (72)

Figure 28 – World's Bank Getting Credit Rank

World's Bank Getting Credit Rank	
Rank	Country
1	United Kingdom
1	Malaysia
1	South Africa
4	Hong Kong SAR, China
4	New Zealand
4	United States
4	Latvia
8	Singapore
8	Korea, Rep.
...	...
126	Portugal
126	Bahrain
126	Samoa
126	St. Vincent
126	Brunei Darussalam
126	St. Kitts and Nevis
126	Cape Verde
...	...
177	Madagascar
177	Tajikistan
177	São Tomé and Príncipe
177	Djibouti
177	Eritrea
182	Palau
182	Venezuela, RB

Source: (The World Bank, 2011) (39)

Figure 29 – Uncertainty Avoidance Rank

Uncertainty Avoidance Rank		
Rank	Country	Score
1	Greece	112
2	Portugal	104
3	Guatemala	101
4	Uruguay	100
5	Belgium	94
6	El Salvador	94
7	Poland	93
8	Japan	92
9	Peru	87
10	Argentina	86
...
60	Ireland	35
61	United Kingdom	35
62	Hong Kong	29
63	Sweden	29
64	Denmark	23
65	Jamaica	13
66	Singapore	8

Source: (Cleary Cultural, 2009) (73)

Figure 30 – FORTUNE’s Who in the world is entrepreneurial Rank

FORTUNE'S Who in the world is entrepreneurial Rank		
Rank	Country	Score
1	New Zealand	2.03
2	United States	2.01
3	Canada	1.99
4	Australia	1.93
5	Singapore	1.88
6	Hong Kong, China	1.86
7	United Kingdom	1.85
8	Ireland	1.85
9	Denmark	1.75
10	Iceland	1.75
...
20	France	1.50
21	Jamaica	1.49
22	Netherlands	1.45
23	Belgium	1.45
24	Germany	1.37
25	Portugal	1.36
26	Peru	1.33
27	South Africa	1.32
28	Malaysia	1.31
29	Colombia	1.29
30	Russia	1.29
...
50	Brazil	0.92
51	Philippines	0.90
52	Greece	0.76
53	Indonesia	0.61

Source: (Fortune Small Business, 2007) (44)

Figure 31 – Deferral Scenarios

Tax Base	Deferral Scenarios										
	<0€	[0€-100€]	[100€-500€]	[500€-1.000€]	[1.000€-5.000€]	[5.000€-10.000€]	[10.000€-50.000€]	[50.000€-100.000€]	[100.000€-250.000€]	[250.000€-500.000€]	[500.000€-1.000.000€]
Income Tax	0€	0€-25€	25€-125€	125€-250€	250€-1.250€	1.250€-2.500€	2.500€-12.500€	12.500€-25.000€	25.000€-62.500€	62.500€-125.000€	125.000€-250.000€
Net Income	0€	0€-75€	75€-375€	375€-750€	750€-3.750€	3.750€-7.500€	7.500€-37.500€	37.500€-75.000€	75.000€-187.500€	187.500€-375.000€	375.000€-750.000€
Income Tax 2 Years	0€	0€-50€	50€-250€	250€-500€	500€-2.500€	2.500€-5.000€	5.000€-25.000€	25.000€-50.000€	50.000€-125.000€	125.000€-250.000€	250.000€-500.000€
Net Income 2 Years	0€	0€-150€	150€-750€	750€-1.500€	1.500€-7.500€	7.500€-15.000€	15.000€-75.000€	75.000€-150.000€	150.000€-375.000€	375.000€-750.000€	750.000€-1.500.000€

The previous table tries to illustrate possible scenarios of the startups on their initial two years of activity.

The table shows various ranges of tax base⁴⁴ values of the startups, the correspondent tax and the net income remaining. What is seen is that an acceptable maximum value of the tax base would be 100.000 € (range in green), because in one year period the company would have a net profit of 75.000 € a considerable value that should guarantee the company’s survival and where an extra 25.000 € (that would be saved by the tax) are not that relevant.

It should be clear that the notion in here is tax base, not taxable profit, business volume or any other type of measurement. This notion is extremely important because the tax base already comprises the possible deferral of negative results that lower the company’s tax base. Therefore, a company is excluded of the deferral benefit if at least in one of the initial two years it has a tax base value equal or higher than 100.000 €.

⁴⁴ Tax base is “the assessed value of a set of assets, investments or income streams that is subject to taxation, or the assessed value of a single asset that is subject to taxation. Anything that can be taxed has a tax base”. (Investopedia ULC., 2012) (99)

Appendix 2 - Interviews

Interview 1 - Interview with Dr. José Silva Jorge

Previous note: Dr. José Silva Jorge is an “*experienced Tax Consulting Professional specialized in Corporate Taxation (including indirect taxes relevant for corporations)*” his areas of expertise are Tax planning, Accounting, Tax compliance and Mergers & Acquisitions (LinkedIn, 2012) (74).

Dr. José Silva Jorge’s opinion about a model of tax deferral

The following notes were transcript after a recorded semi-structured⁴⁵ interview made to Dr. José Silva Jorge. The meeting took place on the 10th of April of 2012 in Mazar’s office, comprising many topics and lasting for 1 hour and 8 minutes with Portuguese being the spoken language. Because of that and in order to establish a precise line of thought I will adapt the content of the interview without jeopardizing the reasoning of Dr. José Silva Jorge.

The topics set for discussion were related with the scope of this thesis, being the deferral of taxes, the survival of the startups, the role of the government supporting the startups and other subjects related with these.

After the initial greetings and thanks I started by introducing the thesis theme reporting the problem verified by the evidence that the deferral of the Corporate Income Tax in startups with no profits was not meaningful because they already have that tax deferred. Therefore I asked him what the possibility of deferring Social Charges was and if it was legal to which he answered that in a legal point of view no, it was not possible. It would oblige to create some kind of legislation to do that but there are already some kind of incentives where companies do not need to pay the social security of their workers in special cases such as first job or unemployed workers.

He then added that deferring the Social Charges does make sense and even more sense would be probably the exemption instead of just a deferral because with the deferral the state would be creating an expected income that might not be received in the future if the companies did not survived but always limiting these incentives with a maximum plafond allowed regarding the companies’ profits. In here Dr. José Silva Jorge also suggested a mixed mechanism where not all the companies should be completely exempted from paying the Social Charges and some might pay a percentage (for example, 50 p.p.) which would be a fairer solution.

For the company side, Dr. José Silva Jorge noticed that in legal terms, what is happening in Portugal is that some companies in difficulties do not even pay the salary to the workers or the Social Charges. This happens because if the firm does pay the salary but not the Social Charges to the state then the firm is incurring in a crime, while if it does not pay anything (neither salary nor Social Charges) there is no criminal activity once it simply has not been processed yet.

Back to the Corporate Income Tax, Dr. José Silva Jorge indeed considered the idea of a deferral of this tax could be an incentive that already exists in some countries. Once again he suggested that the model would have to have a limit, a plafond according to the companies’ profits and it should be only applied to “*genuine startups*”, this is, the startups created by individuals and not by other companies for the reason that it would give liberty for some companies, specially big multinationals to create this companies and spread their profits among them in order to do not pay any taxes.

For the state the impact would be reduced because in most cases the companies do not show positive results and already do not pay this tax, in fact he pointed, that the reporting of negative results could

⁴⁵ The interview is considered semi-structured because although there was a guideline pre-determined, the answers were open which could originate new questions not defined earlier. This concept will also be applied on the second interview.

be done for a five year period (for example, a company with negative results in the first year could continue to operate with negative results until the sixth year).

Nevertheless Dr. José mentioned that there is another tax that is charged at the third year of reporting negative results. The tax is called Special Payment on Account (in Portuguese, Pagamento Especial por Conta) and is charged at 1 p.p. of the business volume of that year with a maximum of 70.000 € payable per year. This tax can be deducted from future profits and is aimed to fight artificial companies that are maintained only for heritage purposes.

I then introduced the CIT range of values (see figure 31 in appendix 1) asking if it makes sense to have a deferral model for higher profits. Dr. José referred the situation of CIT where previously the profits were taxed at a 12,5 p.p. rate until 12.500 € and after that, the difference taxed at 25 p.p. in Dr. José's opinion this mechanism was wrongly created because it was implemented equally for all the companies. For example a company with a 100.000.000,00 € in profits would pay a tax of 12,5 p.p. out of the initial 12.500,00 € and 25 p.p. out of the remaining. This means that the overall percentage paid would tend to be of 25 p.p., with the difference of the two taxes being almost irrelevant in this case. While a small company with profits of 25.000,00 € would pay 12,5 p.p. on the initial and 25 p.p. on the remaining resulting in a huge discrepancy of proportional values when comparing to the previously big company, this is, the tax of 12,5 p.p. is indifferent for the big company while the 25 p.p. make a huge impact in the small company. What Dr. José recommended is that the mixed tax should be used for lower profits and a fixed tax for companies with higher profits, which would help smaller companies with lower profits and even more if there was an initial exemption from the CIT for smaller companies.

Introducing the possibility of "manipulating" the taxable profits, I asked if that would weaken the model of tax deferral. Dr. José replied stating that it is relative, to "manipulate" the profit there are two ways, by the amortizations or through costs.

In what concerns the amortizations, the possibility is to amortize the good faster or slower, which will affect the profits (for example, a good can be amortized in three years and be used for eight). In fact, there are some countries already giving incentives to this and Portugal already have some incentives as well but there are some other countries more aggressive, like United Kingdom for example.

On the costs side, there is a limited scope, because the costs are incurred when they have to be with most companies trying to do a "matching" this is, to incur in expenses when they receive the income. But what happens in many cases is that the company has to incur in expenses first to receive the money later (for example, a software company might need to develop the product first and only after receive the payment), which gives space for some manipulation reporting high expense at the end of the year and low expenses at the time of receiving the payment, for example. But, like Dr. José said *"these manipulations are against the law, which does not mean that they do not happen but can only be discovered after an investigation and not all companies are investigated"*.

Dr. José introduced another possibility, related with the VAT, he noticed although the VAT was a neutral tax, many capital based companies needed to invest higher amounts in acquiring goods and materials for doing business, paying the correspondent VAT, which is deductible when the company starts selling their goods and/or services but what happens is that the period after the investment until starting the business, might not be so reduced, with the firm having some capital tied up until being able to get it back. Although there are mechanisms to ask for the reimbursement before deduct it from sales, it is a very slow process with a maximum plafond and many companies do not do it. It is in this sense that in Dr. José's opinion there is here the possibility for introducing a tax deferral as well.

The next step of the meeting was characterized by some specific questions I made related with the effects of the model.

First, concerning the government, if in the current Portuguese situation, does it have the incentive to apply measures like these? Dr. José noticed that the problem was not in the incentive of the state but if there was any margin in the state budget to do it but in fact that concern was a fallacy because most of the companies in difficulties are not generating profits and therefore not paying taxes already, with

the model acting as more of an incentive for the persons to engage in entrepreneurial activities than for the companies to take advantage of it. In his words, *“the reality is if the state does not do anything what does it gain in taxes? Nothing, because the companies are already not paying those taxes. And if it does give these incentives what does it gain? The state gains a lot, it will gain in VAT, in more Social Charges, and it will reduce unemployment which reduces the unemployment subsidy, among others”*.

He continued *“The risk for the state is reduced because it already does not receive the tax in many cases. These are strong arguments because it will indirectly affect other sources of taxes that otherwise wouldn't appear. The Irish reality is a good example, where even with the bailout and the consequent restrictions on the economy, they struggled to maintain a fixed CIT tax at 12,5 p.p. for smaller and bigger companies acting as an incentive for companies to keep their businesses there which wouldn't probably happen with an increase of the taxes. Which is in contrast to what happens in Portugal that increased the CIT and it is relevant even for bigger companies because these companies create a lot of smaller businesses dependent on their core business and therefore have a bigger effect on the economy”*.

I then asked the possibility of the implemented firms feel that this incentive would be somewhat a distortion on the competition and try to act against it. Dr. José replied that it is not an illegal competition because the big companies are not competing against small companies but with other big companies (for example the three big phone operators will not compete against a startup, they compete amongst themselves). What could in fact happen is an illegal competition among countries specially within the European Union, but it is already regulated by the European Commission.

The following question was directly aimed to know Dr. José's personal opinion on why does the startups fail? He answered that in his opinion it is not related with the tax itself, but with the market, the companies being able or not to satisfy the needs of the market.

I let him know what I found in the Literature Review that tells us that companies do not fail for being young but for not creating value. And based on this I asked that if with more time gained with the tax saved the companies would be able to survive more? In Dr. José's words, *“yes, if they had more time and resources the companies would be able to adapt to the market. In many cases the companies before entering the market do not have the capacity to understand what customers want while bigger companies have greater capacities and better access to reach that kind of information thanks to their size and resources availability. There could be some mismatch with the product and consumer, especially for smaller companies while bigger ones have higher facilities in adapting the product, to study and understand the consumer.”*

Dr. José suggested that startups should be supported by the big companies, which is a lack in the Portuguese enterprise sector. Big companies would gain through complementarity or could absorb them into their operations. Also in exportations, smaller companies have several difficulties going abroad on their own, they need networking and bigger companies have the possibility to provide it. He pointed precisely that many startups might fail because of being alone.

Another aspect noticed by Dr. José is that the Portuguese culture does not accept failure. *“Who fails once is marked. But failure is normal, like while learning to walk, we fall many times until start walking. In Portugal people are marked at the first failure, while it should be given opportunities to whom who fail, because we learn with the mistakes. Doing different is incurring in mistakes, doing always the same does not lead us to mistake”*.

Finally, I expressed some doubts about the five companies analyzed, more specially what might be the reasons for the values of the CIT of those companies. The explanation given was different according to the company but the reasons were based in the Autonomous Taxation (in Portuguese, *Tributações Autónomas*), another tax introduced in order to tribute expenses (usually this tax is 10 p.p.) such automobile transportation, expenses with representations like lunches with clients and kilometers paid for the staff with dislocations made on their own automobile, because these types of expenses can be forms of disguised salary payment – known as fringe benefits and this way there is no tax avoidance.

With no more subjects to be discussed I thanked Dr. José for his time and concluded the interview.

Interview 2 - Interview with Dr. Francisco Banha

Previous note: Dr. Francisco Banha is a Portuguese expert in entrepreneurship, founder and president of FNABA⁴⁶ being “an unquestioned reference in the Portuguese enterprising environment” with “a solid management academic background and two published books on the venture capital subject, Francisco Banha continues to influence many young entrepreneurs and to support them in raising venture capital for their projects”. His areas of expertise are fund raising, venture capital, business management, entrepreneurship and accounting (LinkedIn, 2012) (75).

Dr. Francisco Banha’s opinion about a model of tax deferral

The following notes were also transcript after a recorded semi-structured interview made to Dr. Francisco Banha. The meeting took place on the 1st of May in Gesbanha’s headquarters, comprising many topics and lasting for 42 minutes with Portuguese being the spoken language. Because of that and in order to establish a precise line of thought I will adapt the content of the interview without jeopardizing the reasoning of Dr. Francisco Banha.

The topics set for discussion were the same as the previous interview and related with the scope of this thesis, being the deferral of taxes, the survival of the startups, the role of the government supporting the startups and others subjects related with these.

Dr. Francisco Banha was already aware of the subject of my thesis once I have reached him by e-mail asking for information for my thesis. Therefore I started by asking him if it made sense, the companies being able to defer their taxes on the first two years of activity or if it should be more years.

Dr. Francisco Banha replied stating that by his experience on the first two years the startups don’t have positive results, which would somehow compromise the pertinence of the deferral of the CIT but for the SC indeed it made sense and that two years also makes sense because it already provides enough insights if the company will have or not the conditions to survive.

Having this established I asked about the method of repayment, if it makes sense for the companies to repay the taxes from the third year on at a rate of 25 p.p. per year. Dr. Banha totally agreed, stating that it was a good model and that by his experience companies tend to do not pay the CIT on the first years and that the opportunity of deferral will remain mostly on the deferral of the social security charges because the personal income tax is not charged at the company but to the employees, with the companies only retaining its value, acting only as an intermediary. Clarifying the social charges rubric that appears on the income statement is only referent to the social security and the insurance of the employees.

After, I asked if, based on Dr. Banha’s experience, the taxes had any weight on the failure of the startups. On his opinion, if the startups could be exempted from the social charges for a two year period it would make sense but regarding the failure it does not play a significant role because the CIT is already possible to defer. While, according to Dr. Banha, the common causes of failure are firstly (on the startups of opportunity and not of necessity⁴⁷) the market acceptance (because its new concepts that might not be accepted by the market), secondly the management team (that might not have the necessary knowledge to implement the business successfully), thirdly the capital structure of the

⁴⁶ FNABA (in Portuguese Federação Nacional de Associações de Business Angels) is a Portuguese federation that plays a “key role in the Portuguese entrepreneurship ecosystem adding management knowledge and experience, direct access to the international network of Business Angels and open doors for the commercial development of new projects” (FNABA, 2010) (100).

⁴⁷ Dr. Francisco Banha divided the startups in opportunity startups which are startups created with the goal of fulfilling an opportunity or the introduction of an innovation that tends to be disruptive and necessity startups which are created out of necessity and typically created as a replication of an existing successful business (for example, restaurants, hairdressers, etc). This concept is similar to the one described on the Literature Review under the Entrepreneurship topic.

company and financing issues (that in many cases face liquidity problems) and fourthly the dimension of the Portuguese market that although is good as an early adopter market is small when trying to increase the scale which forces the companies to go outside (that is not always feasible).

I asked, based on my calculations, if the deferral of 7 to 8 p.p. per year of the net income would be relevant for the companies. Dr. Francisco Banha considers it an interesting value, which can be used as an incentive, a stimulus for the Portuguese to create their own business, acting as a positive discrimination for who engages in entrepreneurship (those who creates their own business deserve to be compensated by the risk taken).

Based on the possible indirect costs for the state and the society, I asked what other costs the failure of startups could bring. Dr. Banha was very clear pointing the demonstration effect as the other possible cost for the society and the state in general. By this demonstration effect Dr. Banha considers the effect that especially for entrepreneurs, other companies have. If companies fail but others succeed, there could be a replication by other entrepreneurs trying to achieve that success, for example *“in 2004 and 2005 there about 56 startups created by venture capital, but after 2005 until 2012 there were no companies created by venture capital but one, in 2007. While in 2004 as there were investment, youngsters in many areas, especially scientific ones, began to apply to venture capital funds in a clear demonstration effect”*. This demonstration effect is supposed to be a virtuous cycle but if most of the companies fail the demonstration effect will be negative, with no one having the courage to create a business. On other words, this demonstration effect would be an inhibitor of entrepreneurship.

In terms of funding, I asked if it is difficult for the startups to received bank credit. Once again, Dr. Banha divided between opportunity startups and necessity startups. The innovative businesses have indeed more difficulties accessing credit from the banks because they are considered more risky, being forced to used venture capital, business angel or other entrepreneurial funds. In the business models replicated the access to bank credit is easier as long as there is a strong management team behind typically with experience in the area, because if not, then the access to that credit will also be difficult.

Regarding the taxable base defined on figure 31 appendix 1, I asked if, in Dr. Banha's opinion it would make sense to limit the companies eligible to defer their taxes at a maximum of 100.000,00€ of taxable base. In Dr. Banha's opinion that value is interesting and reasonable and in fact if the companies have that value of taxable base then they theoretically already have the conditions to survive.

In this sense, based on Dr. José Silva Jorge's opinion, I asked if Dr. Francisco Banha agreed that the companies eligible for this deferral should also be limited to be genuine startups and not startups created by other companies. An argument that Dr. Banha totally agreed on.

Based on previous conversations, Dr. Banha had told me that he though this deferral would make more sense applied to startups financed by venture capital only because these would be the truly innovative startups. I asked him if he still shared this opinion knowing that the other companies created also contributed for employment and could eventually achieve more success than those startups financed by VC. Dr. Banha clarified that he thinks that indeed all companies should be covered by this model of deferral but if that is not possible (for state restrictions, etc) than the startups financed by VC should be the primary focus of that model *“because these are innovative businesses with the potential to go international and truly create value”*.

Regarding the possibility of an unfair competition, Dr. Banha stated that is an argument validating his position defending that the deferral should primary focus on the startups financed by VC because these are innovative companies that will create new markets where there is no competition using as an example the concept created by A Vida é Bela⁴⁸.

This led to the question if Dr. Banha knew about other similar models in other countries to this model of deferral. The answer was no, but he stated that it should not be a limitation to its implementation just because it is not done elsewhere. In his words, *“if it is interesting, it should be applied”*.

⁴⁸ A Vida é Bela is a Portuguese company that created a new concept in Portugal based on the commercialization of experiences through gift certificates being present in Portugal, Brasil, Spain and Italy.(A Vida é Bela , 2009) (104). Its volume of business in 2011 was of 50 million euros (Diário de Notícias, 2012) (105).

The following question was to understand if the government has any incentive to create this model on the current crisis and cut of expenses environment that we live in. Dr. Banha said that there is incentive, with entrepreneurship the creation of new businesses there will be always capital movement, the companies have to acquire new equipment, have to pay for employees, electricity, water, etc. and this movement of capital is better for the state because all these transactions are taxable which means that there is money going in as well.

The final question was related with the risk for the state not receiving some of the deferred taxes. Dr. Banha said that the state always wins, has nothing to lose because those companies were doing something: employing workers that otherwise would be receiving unemployment subsidies, there is acquisition of goods and services, there is value creation and the state benefits with all this. Also, the main goal of the companies is to provide services or products and the taxes are only indirect revenue of the companies to the state. Moreover Dr. Banha recognized that, *“in Portugal there are no role models on entrepreneurship like there is on football and other areas, no one wants to create their business in Portugal because they are afraid of doing so but everyone wants to be a famous footballer”* which could be attenuated by incentives to entrepreneurship. To finalize, Dr. Banha gave the example of the United States where NASA⁴⁹ is obliged to have part of its budget spent in startups which creates an incentive for the startups to develop products and sell them to NASA, while in Portugal there is not a favorable environment for startup creation and people only want to invest in successful businesses.

⁴⁹ The National Aeronautics and Space Administration (NASA) *“is the agency of the United States government that is responsible for the nation's civilian space program and for aeronautics and aerospace research. Since February 2006, NASA's mission statement has been to pioneer the future in space exploration, scientific discovery and aeronautics research”* (Wikipedia, 2012) (106).

Appendix 3 – The Model of Tax Deferral Explained

Part 1 – The Basis for the Model

This third appendix is meant to explain in detail the calculation process of the model. The use of tables will be constant and every detail of the model is meant to be addressed. The final goal is to assess, under three different scenarios, the expected CIT and SC to be received by the government as well as the impact that the deferral might have on the unemployment and buying power.

There will be 6 parts, one for each matter (CIT, SC, UC and LBP), a resumed part and the sixth part being the application to real companies. The current is meant to be an introduction and where the basis for the model are explained.

The model is comprised in a 7 year period, from 2004 to 2010 whatever the issue it covers. The reason for the model did not started in a previous year remains in the fact that the data available is restricted and would oblige to make more assumptions that would eventually distort the model even more. Predictions could be made to assess the incoming years but the goal was to evaluate the impact it might have on the government side and past data is more viable than predictive data. Moreover, the period in study already allows the reaching of some conclusions.

One characteristic of this model is that it is based on real data in order to be as reliable as possible. Nevertheless it was constructed with limited access to information, because typically there is no information solo regarding startups but mostly about companies as a whole. These limitations forced the model to be constructed under several assumptions that indeed affect its final output, but all the efforts were made to keep the model as reliable as possible.

The first 4 tables are the basis of the models, after these initials tables I will start by explaining the model for the CIT (part 2), then the model for the SC (part 3), the impact the tax deferral on the unemployment and loss of buying power (parts 4) and finally a resumed situation (part 5) and the real startups cases (part 6).

Once these have been explained, I will focus on the agglomerated results and see their impact.

The basis for the model:

The first steps of the model were based on the gathering of information that will be crucial for the future calculations.

The first step was to assess the number of companies created on the Portuguese territory. Table 10 gives this information from 2004 to 2010.

Table 10

Companies Created		
Year	Total	2009 Variation
2004	23.556	-8,96%
2005	22.059	-14,75%
2006	25.651	-0,87%
2007	28.911	11,73%
2008	29.657	14,62%
2009	25.875	0,00%
2010	28.001	8,22%

Source: (PORDATA, 2011) (70)

The second step was to find the same information regarding the existent companies. Table 11 displays this information, with already some assumptions being made as explained on the notes.

Table 11

Existent Companies		
Year	Total	2009 Variation
2004	300.850	-16,28%
2005	328.230	-8,66%
2006	330.967	-7,90%
2007	341.720	-4,90%
2008	343.663	-4,36%
2009 (1)	359.341	0,00%
2010 (2)	351.502	-2,18%

1 - Because the sample was limited to October of 2009, this value was proportionally changed to incorporate the number of new companies created (displayed on the previous table)

2 - This value was calculated based on the average of the two preceding years

Source: (Gabinete de Estratégia e Planeamento (GEP), 2011, p. 7) (64)

The third step was to find the number of companies dissolved, being displayed on table 12.

Table 12

Companies Dissolved		
Year	Total	% of Existing Companies
2004	13.365	4,44%
2005	15.464	4,71%
2006	8.712	2,63%
2007	11.889	3,48%
2008	41.248	12,00%
2009	30.135	8,39%
2010	21.878	6,22%

Source: (PORDATA, 2011) (69)

Table 13 shows the survival and failure rate of the Portuguese companies from 2004 to 2010. Like it was already explained, the survival rate is the percentage of remaining companies out of the ones created two years earlier. The failure rate on the other hand gives us the percentage of companies that failed from the ones created two years earlier.

Table 13

Year	Survival Rate %	FailureRate %
2010*	51,72%	48,29%
2009	49,36%	50,64%
2008	54,07%	45,93%
2007	53,79%	46,21%
2006	58,70%	41,30%
2005*	56,25%	43,76%
2004*	57,47%	42,53%

* the values were calculated based on the average of the two preceding or proceeding years

Source: (INE, 2011) (71)

These four tables will be used as the basis of the model, comprising crucial data for the future calculations.

Part 2 - Model for the CIT, Government Side

Now, the data for the CIT model starts with the total CIT received by the government from 2004 to 2010 (displayed on the table 14).

Table 14

CIT Received by the Government	
Year	Total
2004	3.891.800.000,00 €
2005	3.721.300.000,00 €
2006	4.333.000.000,00 €
2007	5.689.400.000,00 €
2008	5.952.000.000,00 €
2009	4.540.300.000,00 €
2010	4.591.600.000,00 €

Source: (PORDATA, 2011) (65)

Instituto Nacional de Estatística (2011) (76) gives us the CIT by company age and size (measured in number of employees – a concept that will remain constant for the rest of the model), with the percentage being easily calculated over the total, giving the following distribution of values (table 15), with some assumptions being made for some of the years, but always based on the average of the preceding or proceeding years.

Table 15

Size / Year	CIT Payed by Size (%)						
	2010*	2009	2008	2007	2006*	2005*	2004*
< 10	26,62%	27,16%	26,08%	28,13%	27,11%	27,62%	27,36%
10 to 49	18,87%	20,08%	17,66%	18,19%	17,92%	18,06%	17,99%
50 to 249	19,22%	18,24%	20,19%	18,03%	19,11%	18,57%	18,84%
> 250	35,29%	34,52%	36,07%	35,65%	35,86%	35,75%	35,81%
TOTAL	100%	100%	100%	100%	100%	100%	100%

* the values were calculated based on the average of the two preceding or proceeding years

Source: (INE, 2011) (76)

Table 16 displays the number of companies distributed by age and size (once again measured in number of employees) in 2009. These values were referent to period until October 2009 and so in order to align them with the evidence from the companies created in 2009 (table 10) the values were adjusted, but always maintaining the proportionality among the companies with less than one year. There is a row named “ignored” that accounts for some ignored companies from the sample that was extracted from the sources this way and therefore was maintained for this study as well, nevertheless its value tends to be very small, not influencing significantly the model (for 2009 it represents 0,35% of the total).

This distribution was only available for the year of 2009. For the rest of the years, it had to be deduced. From now on and until the finish of this reasoning the tables will look similar and the row where the year in question is displayed will be followed by the letters of the alphabet just to reinforce the logical steps that were taken – the goal is to reach the tables “C” and “D” for each year (except for 2009 that is represented by the tables “B” and “C”), that will display the percentage of and the number of companies existent respectively.

Table 16

Number of Companies by Age and Size (in units)						
2009 - A						
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL	%
< 1 Year	15.524	725	98	4	16.351	4,67%
1 to 4 Years	71.689	5.788	602	75	78.154	22,34%
5 to 9 Years	73.436	8.506	841	110	82.893	23,70%
10 to 19 Years	77.297	13.202	1.765	290	92.554	26,46%
20 to 49 Years	55.600	13.068	2.760	323	71.751	20,51%
> 50 Years	4.120	1.853	793	127	6.893	1,97%
Ignored	1.201	19	-	1	1.221	0,35%
TOTAL	298.867	43.161	6.859	930	349.817	100,00%
%	85,44%	12,34%	1,96%	0,27%	100,00%	

Source: (Gabinete de Estratégia e Planeamento (GEP), 2011, p. 80) (77)

Table 17 shows the situation already changed, where we can see that the number of companies with less than one year is already equal to the number of the table 10. This also increases the total number of companies and the assumption here is that the rest of the companies remained the same.

Table 17

Number of Companies by Age and Size (in units)						
2009 - B						
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL	%
< 1 Year	24.566	1.147	155	6	25.875	7,20%
1 to 4 Years	71.689	5.788	602	75	78.154	21,75%
5 to 9 Years	73.436	8.506	841	110	82.893	23,07%
10 to 19 Years	77.297	13.202	1.765	290	92.554	25,76%
20 to 49 Years	55.600	13.068	2.760	323	71.751	19,97%
> 50 Years	4.120	1.853	793	127	6.893	1,92%
Ignored	1.201	19	-	1	1.221	0,34%
TOTAL	307.909	43.583	6.916	932	359.341	100,00%
%	85,69%	12,13%	1,92%	0,26%	100,00%	

The next step was to calculate the percentage of the total of each cell in the table, with the result being displayed on table 18. These percentages were the main goal in this phase once they will be crucial on the following developments of the model. The following calculations will be focusing on the same goal, but for the remaining years.

Table 18

Number of Companies by Age and Size (%)				
2009 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,98%	2,63%	2,24%	0,68%
1 to 4 Years	23,28%	13,28%	8,70%	8,04%
5 to 9 Years	23,85%	19,52%	12,16%	11,80%
10 to 19 Years	25,10%	30,29%	25,52%	31,10%
20 to 49 Years	18,06%	29,98%	39,91%	34,64%
> 50 Years	1,34%	4,25%	11,47%	13,62%
Ignored	0,39%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

For 2010 (and also for the remaining years), the only data available was the total of companies by size, which is seeable in Table 19. This information is not enough and forces some further calculations.

Table 19

Number of Companies by Size (in units)					
2010 - A					
	< 10	10 to 49	50 to 249	> 250	TOTAL
TOTAL	300.153	43.539	6.878	932	351.502
%	85,39%	12,39%	1,96%	0,27%	100,00%

Knowing the percentage distribution for 2009, the calculations for 2010 were made as following:

From table 10, we can see that the new companies created increased by 8,22% in relation to the year of 2009 while the existing companies (in table 11) decreased by 2,18%. This means that there was an increase in the number of companies with less than one year but an average decrease on the remaining ones.

From table 17, we have that the percentage of companies with less than one year in 2009 was 7,20%, increasing in 2010 to 7,79% ($0,0720 \cdot (1+0,0822)$) with the remaining companies accounting for 92,80%.

So we have the following equation: $0,0720 \cdot (1+0,0822) + 0,928 \cdot (1+X) = 1 \cdot (1+(-0,0218))$, this means that 7,20% of companies (the ones with less than one year) increased by 8,22% plus the remaining companies (92,80%) that increased or decreased by a value represented by X. Each will be equal to the total variation of -2,18%. The answer trying to be found is that given the variation of the created companies, and the total variation of the companies by how much did the older companies varied.

By solving it, we'll have $X+1 = 0,9701$ and $X = -0,0299$, meaning that for an increase of the new companies in 8,22% the remaining number of companies have to drop by 2,99% so that the overall decrease is equal to the decrease of the existing companies (2,18%), giving the distribution seen in table 20.

Table 20

Number of Companies by Age and Size (%)				
2010 - B				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	8,63%	2,85%	2,43%	0,73%
1 to 4 Years	22,59%	12,88%	8,44%	7,80%
5 to 9 Years	23,14%	18,93%	11,80%	11,45%
10 to 19 Years	24,35%	29,39%	24,76%	30,18%
20 to 49 Years	17,52%	29,09%	38,71%	33,61%
> 50 Years	1,30%	4,12%	11,12%	13,21%
Ignored	0,38%	0,04%	0,00%	0,10%
TOTAL	98%	97%	97%	97%

These results are in percentage of the values of 2009 and that is why the total values never reach 100%. To correct this situation it was used a simple rule, called the rule of three⁵⁰, and the final percentages can be seen on table 21.

⁵⁰ The rule of three is "a shorthand version for a particular form of cross multiplication, often taught to students by rote" and cross multiplication is "In mathematics, specifically in elementary arithmetic and elementary algebra, given an equation between two fractions or rational expressions, one can cross-multiply to simplify the equation or determine the value of a variable" (Wikipedia, 2012) (107).

Table 21

Number of Companies by Age and Size (%)				
2010 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	8,82%	2,93%	2,49%	0,76%
1 to 4 Years	23,07%	13,24%	8,68%	8,04%
5 to 9 Years	23,63%	19,46%	12,13%	11,79%
10 to 19 Years	24,87%	30,20%	25,45%	31,08%
20 to 49 Years	17,89%	29,89%	39,80%	34,62%
> 50 Years	1,33%	4,24%	11,44%	13,61%
Ignored	0,39%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

Finally, to conclude the reasoning for this year, it was made an easy multiplication with the values of table 21 times the values of the table 19. It is understandable that for example the companies with less than one year and less than 10 employees with the value of 8,82% will be multiplied by the total value of the companies with less than 10 employees (300.153), while for example the companies with 1 to 4 years and more than 250 employees (8,04%) will be multiplied by the total value of the companies with more than 250 employees (932). That is why for the first example the number is of 26.469 and for the second example the number is 75. These multiplications will lower the bias in the model once they are considering the distribution of the companies from 2010. Table 22 displays these final results.

Table 22

Number of Companies by Age and Size (in units)					
2010 - D					
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	26.469	1.275	172	7	27.923
1 to 4 Years	69.245	5.765	597	75	75.682
5 to 9 Years	70.933	8.472	834	110	80.348
10 to 19 Years	74.662	13.149	1.751	290	89.851
20 to 49 Years	53.705	13.015	2.738	323	69.780
> 50 Years	3.980	1.846	787	127	6.738
Ignored	1.160	19	-	1	1.180
TOTAL	300.153	43.539	6.878	932	351.502

The method used for 2010 will be the same for the following years, with the year of 2009 used as the basis for any calculation. Once the logic is the equal, I will only introduce the tables and the calculus without the need to explain the same again.

For the year of 2008, we have the initial data:

Table 23

Number of Companies by Size (in units)					
2008 - A					
	< 10	10 to 49	50 to 249	> 250	TOTAL
TOTAL	292.397	43.495	6.840	931	343.663
%	85,08%	12,66%	1,99%	0,27%	100,00%

Using the variations from table 10 and 11, we have the information about the companies created (14,62%) and the change in existent companies (-4,36%), which will lead to the following equation: $0,0720*(1+0,1462) + 0,928*(1+X) = 1*(1+(-0,0436))$, with $X+1 = 0,9416$ and $X = -0,0584$. The table 24, shows the percentages achieved.

Table 24

Number of Companies by Age and Size (%)				
2008 - B				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	9,14%	3,02%	2,57%	0,78%
1 to 4 Years	21,92%	12,51%	8,20%	7,57%
5 to 9 Years	22,46%	18,38%	11,45%	11,11%
10 to 19 Years	23,64%	28,52%	24,03%	29,29%
20 to 49 Years	17,00%	28,23%	37,58%	32,62%
> 50 Years	1,26%	4,00%	10,80%	12,83%
Ignored	0,37%	0,04%	0,00%	0,10%
TOTAL	96%	95%	95%	94%

Applying the rule of three, we have the following distribution (table 25).

Table 25

Number of Companies by Age and Size (%)				
2008 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	9,55%	3,19%	2,72%	0,83%
1 to 4 Years	22,89%	13,20%	8,66%	8,03%
5 to 9 Years	23,44%	19,41%	12,10%	11,78%
10 to 19 Years	24,68%	30,12%	25,40%	31,06%
20 to 49 Years	17,75%	29,81%	39,71%	34,59%
> 50 Years	1,32%	4,23%	11,41%	13,60%
Ignored	0,38%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

And in the end by multiplying the total values of table 23 with the correspondents in table 25, we have the final result for 2008 (table 26).

Table 26

Number of Companies by Age and Size (in units)					
2008 - D					
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	27.912	1.386	186	8	29.491
1 to 4 Years	66.918	5.743	592	75	73.328
5 to 9 Years	68.548	8.441	828	110	77.926
10 to 19 Years	72.153	13.100	1.737	289	87.279
20 to 49 Years	51.900	12.967	2.716	322	67.905
> 50 Years	3.846	1.839	780	127	6.592
Ignored	1.121	19	-	1	1.141
TOTAL	292.397	43.495	6.840	931	343.663

For 2007 the same logic applies. Starting with the total values we have (table 27).

Table 27

Number of Companies by Size (in units)					
2007 - A					
	< 10	10 to 49	50 to 249	> 250	TOTAL
TOTAL	290.281	43.815	6.700	924	341.720
%	84,95%	12,82%	1,96%	0,27%	100,00%

The equation used to calculate the next table will be as following: $0,0720 \cdot (1+0,1173) + 0,928 \cdot (1+X) = 1 \cdot (1+(-0,0490))$, with $X+1 = 0,9381$ and $X = -0,0619$.

Table 28

Number of Companies by Age and Size (%)				
2007 - B				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	8,91%	2,94%	2,51%	0,76%
1 to 4 Years	21,84%	12,46%	8,17%	7,55%
5 to 9 Years	22,37%	18,31%	11,41%	11,07%
10 to 19 Years	23,55%	28,41%	23,94%	29,18%
20 to 49 Years	16,94%	28,13%	37,43%	32,50%
> 50 Years	1,26%	3,99%	10,76%	12,78%
Ignored	0,37%	0,04%	0,00%	0,10%
TOTAL	95%	94%	94%	94%

Using the rule of three, we have the final percentages (table 29) for 2007.

Table 29

Number of Companies by Age and Size (%)				
2007 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	9,36%	3,12%	2,66%	0,81%
1 to 4 Years	22,93%	13,21%	8,67%	8,03%
5 to 9 Years	23,49%	19,42%	12,11%	11,78%
10 to 19 Years	24,73%	30,14%	25,41%	31,06%
20 to 49 Years	17,79%	29,83%	39,74%	34,60%
> 50 Years	1,32%	4,23%	11,42%	13,60%
Ignored	0,38%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

The previous percentages will allow the calculation of the final table.

Table 30

Number of Companies by Age and Size (in units)					
2007 - D					
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	27.172	1.367	178	7	28.724
1 to 4 Years	66.570	5.790	581	74	73.014
5 to 9 Years	68.192	8.508	811	109	77.620
10 to 19 Years	71.777	13.206	1.703	287	86.972
20 to 49 Years	51.630	13.072	2.662	320	67.683
> 50 Years	3.826	1.854	765	126	6.570
Ignored	1.115	19	-	1	1.135
TOTAL	290.281	43.815	6.700	924	341.720

For the year of 2006, we have the following values (table 31).

Table 31

Number of Companies by Size (in units)					
2006 - A					
	< 10	10 to 49	50 to 249	> 250	TOTAL
TOTAL	281.420	42.174	6.469	904	330.967
%	85,03%	12,74%	1,95%	0,27%	100,00%

With the equation for the variation in the number of companies being: $0,0720 \cdot (1 + (-0,0087)) + 0,928 \cdot (1 + X) = 1 \cdot (1 + (-0,0790))$, with $X+1 = 0,9156$ and $X = -0,0844$. After the necessary calculation, the result is given in the table 32.

Table 32

Number of Companies by Age and Size (%)				
2006 - B				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,91%	2,61%	2,22%	0,67%
1 to 4 Years	21,32%	12,16%	7,97%	7,37%
5 to 9 Years	21,84%	17,87%	11,13%	10,80%
10 to 19 Years	22,98%	27,73%	23,37%	28,48%
20 to 49 Years	16,53%	27,45%	36,54%	31,72%
> 50 Years	1,23%	3,89%	10,50%	12,47%
Ignored	0,36%	0,04%	0,00%	0,10%
TOTAL	92%	92%	92%	92%

With the next step being the application of the rule of three, we have the following distribution (table 33).

Table 33

Number of Companies by Age and Size (%)				
2006 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	8,58%	2,84%	2,42%	0,73%
1 to 4 Years	23,13%	13,25%	8,69%	8,04%
5 to 9 Years	23,69%	19,47%	12,14%	11,79%
10 to 19 Years	24,94%	30,23%	25,47%	31,09%
20 to 49 Years	17,94%	29,92%	39,83%	34,62%
> 50 Years	1,33%	4,24%	11,44%	13,61%
Ignored	0,39%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

With the final percentages calculated, the final table will appear as follows (table 34).

Table 34

Number of Companies by Age and Size (in units)					
2006 - D					
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	24.151	1.199	157	7	25.514
1 to 4 Years	65.092	5.589	562	73	71.315
5 to 9 Years	66.678	8.213	785	107	75.783
10 to 19 Years	70.184	12.747	1.648	281	84.860
20 to 49 Years	50.483	12.618	2.577	313	65.991
> 50 Years	3.741	1.789	740	123	6.393
Ignored	1.090	18	-	1	1.110
TOTAL	281.420	42.174	6.469	904	330.967

For the year of 2005, we start again with the initial table with the total number of companies displayed by company size (table 35).

Table 35

Number of Companies by Size (in units)					
2005 - A					
	< 10	10 to 49	50 to 249	> 250	TOTAL
TOTAL	278.726	42.241	6.353	910	328.230
%	84,22%	12,76%	1,92%	0,27%	99,17%

Once again using the equation to calculate the percentage values we have: $0,0720 \cdot (1 + (-0,1475)) + 0,928 \cdot (1 + X) = 1 \cdot (1 + (-0,0866))$, with $X+1 = 0,9181$ and $X = -0,0819$. The table 36 displays all the values for 2005, after the necessary calculation.

Table 36

Number of Companies by Age and Size (%)				
2005 - B				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	6,80%	2,24%	1,91%	0,58%
1 to 4 Years	21,38%	12,19%	7,99%	7,39%
5 to 9 Years	21,90%	17,92%	11,16%	10,83%
10 to 19 Years	23,05%	27,81%	23,43%	28,56%
20 to 49 Years	16,58%	27,53%	36,64%	31,81%
> 50 Years	1,23%	3,90%	10,53%	12,51%
Ignored	0,36%	0,04%	0,00%	0,10%
TOTAL	91%	92%	92%	92%

By applying the rule of three, the table 36 will give place to the table 37.

Table 37

Number of Companies by Age and Size (%)				
2005 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,45%	2,45%	2,09%	0,63%
1 to 4 Years	23,42%	13,31%	8,72%	8,05%
5 to 9 Years	23,99%	19,55%	12,18%	11,80%
10 to 19 Years	25,25%	30,35%	25,56%	31,12%
20 to 49 Years	18,16%	30,04%	39,97%	34,66%
> 50 Years	1,35%	4,26%	11,48%	13,63%
Ignored	0,39%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

The table 37 is the final table in terms of percentage that once multiplied by the table 35 will deliver the table 38, with the total number of companies.

Table 38

Number of Companies by Age and Size (in units)					
2005 - D					
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	20.767	1.034	132	6	21.940
1 to 4 Years	65.267	5.620	554	73	71.514
5 to 9 Years	66.857	8.260	774	107	75.998
10 to 19 Years	70.372	12.820	1.624	283	85.099
20 to 49 Years	50.619	12.689	2.539	315	66.163
> 50 Years	3.751	1.799	730	124	6.404
Ignored	1.093	18	-	1	1.113
TOTAL	278.726	42.241	6.353	910	328.230

Finally, for the year of 2004, the procedures will be the same. Having the initial table displayed below (table 39).

Table 39

Number of Companies by Size (in units)					
2004 - A					
	< 10	10 to 49	50 to 249	> 250	TOTAL
TOTAL	278.726	42.241	6.353	910	328.230
%	84,22%	12,76%	1,92%	0,27%	99,17%

Using the equation to reach the table 40, we have: $0,0720*(1+(-0,0896)) + 0,928*(1+X) = 1*(1+(-0,1628))$, with $X+1 = 0,8316$ and $X = -0,1684$.

Table 40

Number of Companies by Age and Size (%)				
2004 - B				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,26%	2,40%	2,04%	0,62%
1 to 4 Years	21,38%	12,19%	7,99%	7,39%
5 to 9 Years	21,90%	17,92%	11,16%	10,83%
10 to 19 Years	23,05%	27,81%	23,43%	28,56%
20 to 49 Years	16,58%	27,53%	36,64%	31,81%
> 50 Years	1,23%	3,90%	10,53%	12,51%
Ignored	0,36%	0,04%	0,00%	0,10%
TOTAL	92%	92%	92%	92%

Using the rule of three, we reach the table 41.

Table 41

Number of Companies by Age and Size (%)				
2004 - C				
Age / Size	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,92%	2,61%	2,22%	0,67%
1 to 4 Years	23,30%	13,28%	8,71%	8,04%
5 to 9 Years	23,87%	19,52%	12,16%	11,80%
10 to 19 Years	25,12%	30,30%	25,53%	31,11%
20 to 49 Years	18,07%	29,99%	39,91%	34,65%
> 50 Years	1,34%	4,25%	11,47%	13,62%
Ignored	0,39%	0,04%	0,00%	0,11%
TOTAL	100%	100%	100%	100%

And finally, the table 42 is achieved after the multiplication between the table 41 and the table 39.

Table 42

Number of Companies by Age and Size (in units)					
2004 - D					
Age / Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	20.110	1.041	136	6	21.292
1 to 4 Years	59.186	5.296	531	68	65.081
5 to 9 Years	60.629	7.782	742	100	69.253
10 to 19 Years	63.816	12.079	1.556	264	77.715
20 to 49 Years	45.903	11.956	2.434	294	60.587
> 50 Years	3.401	1.695	699	116	5.912
Ignored	992	17	-	1	1.010
TOTAL	254.038	39.866	6.097	849	300.850

Like mentioned earlier the reasoning was equal across the years and was aimed to achieve the tables "C" and "D" for each year that will be extremely important ahead. These tables tended to be as less biased as possible but always conditioned by some subjectivity.

The next step in calculating the model was to match the percentage paid by each category of companies with the total CIT paid.

First, using the data available in the table 15, we have the percentage paid by each segment of companies (by size). So, for 2010, we know that from the total CIT paid (4.591.600.000,00 € - table 14), 26,62% was paid by the companies with less than 10 employees (table 15). We also know that from the companies with less than 10 employees in 2010, 8,82% are less than one year (table 21). So, from the 4.591.600.000,00 €, 26,62% will be referent to companies with less than 10 employees and from these 8,82% will be referent to companies with less than one year, giving us the value of 107.786.634,76 €. Applying the same logic to the rest of the companies we'll reach the table 43.

Table 43

CIT by Company Age and Size (in units €)					
2010					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	107.786.634,76 €	25.366.481,66 €	21.413.622,32 €	11.905.406,18 €	166.472.144,93 €
1 to 4 Years	281.973.727,59 €	114.721.705,51 €	74.517.006,24 €	126.456.260,07 €	597.668.699,41 €
5 to 9 Years	288.845.187,67 €	168.594.130,46 €	104.101.000,42 €	185.469.181,43 €	747.009.499,98 €
10 to 19 Years	304.031.625,79 €	261.671.727,05 €	218.475.940,23 €	488.964.205,59 €	1.273.143.498,66 €
20 to 49 Years	218.691.002,16 €	259.015.764,97 €	341.639.430,62 €	544.604.960,02 €	1.363.951.157,76 €
> 50 Years	16.205.160,59 €	36.727.595,08 €	98.159.445,10 €	214.132.600,38 €	365.224.801,15 €
TOTAL	1.217.533.338,56 €	866.097.404,72 €	858.306.444,93 €	1.571.532.613,67 €	4.513.469.801,89 €

The same calculations were made for the rest of the years and the results are as following. With each table (from 44 to 49) being correspondent to the years of 2009 to 2004, respectively.

Table 44

CIT by Company Age and Size (in units €)					
2009					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	98.390.325,41 €	23.997.738,45 €	18.574.886,96 €	10.639.543,04 €	151.602.493,86 €
1 to 4 Years	287.121.190,03 €	121.066.724,23 €	72.104.198,74 €	126.063.165,37 €	606.355.278,36 €
5 to 9 Years	294.118.089,40 €	177.918.720,85 €	100.730.284,29 €	184.892.642,54 €	757.659.737,07 €
10 to 19 Years	309.581.757,67 €	276.144.245,55 €	211.401.845,14 €	487.444.239,41 €	1.284.572.087,78 €
20 to 49 Years	222.683.231,26 €	273.341.387,74 €	330.577.389,57 €	542.912.032,17 €	1.369.514.040,74 €
> 50 Years	16.500.987,64 €	38.758.921,91 €	94.981.112,29 €	213.466.960,02 €	363.707.981,86 €
TOTAL	1.228.395.581,40 €	911.227.738,72 €	828.369.717,00 €	1.565.418.582,54 €	4.533.411.619,66 €

Table 45

CIT by Company Age and Size (in units €)					
2008					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	148.164.808,10 €	33.494.252,33 €	32.645.272,69 €	17.713.700,19 €	232.018.033,31 €
1 to 4 Years	355.220.023,83 €	138.823.916,17 €	104.110.421,35 €	172.430.485,01 €	770.584.846,36 €
5 to 9 Years	363.876.433,90 €	204.014.552,68 €	145.443.296,27 €	252.898.044,68 €	966.232.327,53 €
10 to 19 Years	383.007.744,31 €	316.647.087,30 €	305.240.687,19 €	666.731.208,69 €	1.671.626.727,48 €
20 to 49 Years	275.498.797,93 €	313.433.126,56 €	477.316.881,94 €	742.600.622,10 €	1.808.849.428,52 €
> 50 Years	20.414.659,13 €	44.443.800,39 €	137.142.133,11 €	291.982.287,94 €	493.982.880,57 €
TOTAL	1.546.182.467,19 €	1.050.856.735,43 €	1.201.898.692,56 €	2.144.356.348,61 €	5.943.294.243,78 €

Table 46

CIT by Company Age and Size (in units €)					
2007					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	149.825.449,08 €	32.280.628,55 €	27.283.772,80 €	16.380.530,80 €	225.770.381,23 €
1 to 4 Years	367.065.325,39 €	136.722.938,22 €	88.916.779,53 €	162.943.907,70 €	755.648.950,84 €
5 to 9 Years	376.010.395,39 €	200.926.971,75 €	124.217.627,22 €	238.984.397,96 €	940.139.392,32 €
10 to 19 Years	395.779.665,73 €	311.854.911,94 €	260.694.544,64 €	630.049.776,43 €	1.598.378.898,75 €
20 to 49 Years	284.685.685,27 €	308.689.591,67 €	407.658.324,77 €	701.745.095,82 €	1.702.778.697,53 €
> 50 Years	21.095.414,09 €	43.771.182,54 €	117.127.917,23 €	275.918.350,37 €	457.912.864,22 €
TOTAL	1.594.461.934,96 €	1.034.246.224,66 €	1.025.898.966,20 €	2.026.022.059,06 €	5.680.629.184,88 €

Table 47

CIT by Company Age and Size (in units €)					
2006					
Age/Size	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	100.792.704,96 €	22.089.065,60 €	20.069.127,02 €	11.414.996,71 €	154.365.894,29 €
1 to 4 Years	271.653.941,38 €	102.921.446,80 €	71.951.014,02 €	124.915.141,55 €	571.441.543,75 €
5 to 9 Years	278.273.917,04 €	151.252.561,60 €	100.516.283,71 €	183.208.874,27 €	713.251.636,62 €
10 to 19 Years	292.904.555,88 €	234.756.209,52 €	210.952.723,83 €	483.005.214,00 €	1.221.618.703,23 €
20 to 49 Years	210.687.262,21 €	232.373.439,33 €	329.875.080,90 €	537.967.876,28 €	1.310.903.658,71 €
> 50 Years	15.612.077,70 €	32.949.799,75 €	94.779.325,78 €	211.522.973,03 €	354.864.176,25 €
TOTAL	1.169.924.459,18 €	776.342.522,60 €	828.143.555,25 €	1.552.035.075,84 €	4.326.445.612,87 €

CIT by Company Age and Size (in units €)					
2005					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	76.577.431,79 €	15.078.749,46 €	14.412.777,05 €	8.391.462,08 €	114.460.420,39 €
1 to 4 Years	240.669.289,51 €	81.926.958,41 €	60.254.442,80 €	107.080.378,85 €	489.931.069,57 €
5 to 9 Years	246.534.195,55 €	120.399.223,95 €	84.176.057,13 €	157.051.222,31 €	608.160.698,94 €
10 to 19 Years	259.496.074,32 €	186.869.333,95 €	176.659.620,49 €	414.044.131,54 €	1.037.069.160,30 €
20 to 49 Years	186.656.425,63 €	184.972.614,46 €	276.249.604,85 €	461.159.498,24 €	1.109.038.143,18 €
> 50 Years	13.831.375,42 €	26.228.516,57 €	79.371.716,18 €	181.322.774,85 €	300.754.383,02 €
TOTAL	1.023.764.792,23 €	615.475.396,81 €	691.124.218,50 €	1.329.049.467,87 €	3.659.413.875,40 €

Table 48

Table 49

CIT by Company Age and Size (in units €)					
2004					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	84.299.013,04 €	18.278.698,37 €	16.307.126,39 €	9.381.164,50 €	128.266.002,29 €
1 to 4 Years	248.099.931,16 €	93.001.734,36 €	63.841.505,24 €	112.101.981,48 €	517.045.152,24 €
5 to 9 Years	254.145.915,62 €	136.674.628,96 €	89.187.219,12 €	164.416.239,50 €	644.424.003,20 €
10 to 19 Years	267.507.991,17 €	212.130.078,95 €	187.176.506,24 €	433.460.995,06 €	1.100.275.571,41 €
20 to 49 Years	192.419.425,19 €	209.976.963,47 €	292.695.273,21 €	482.785.866,91 €	1.177.877.528,77 €
> 50 Years	14.258.417,84 €	29.774.052,14 €	84.096.866,54 €	189.826.021,97 €	317.955.358,49 €
TOTAL	1.060.730.694,00 €	699.836.156,24 €	733.304.496,74 €	1.391.972.269,42 €	3.885.843.616,40 €

Having achieved these results it is important to see the impact on the state. For that another effort on calculations is needed. The following tables will represent these effort made in order to achieve 3 different scenarios using the deferral of CIT, plus another scenario without the deferral. These 3 cases will be a realistic, an optimistic and a pessimistic model like we'll see more ahead.

In table 50 is shown the criteria used in the calculus. The first row (new companies) comprises the companies with less than one year and its values can be easily seen on the tables previously calculated (the "D" tables). The second row can also be seen on the previous tables (from the 43th to the 49th).

The survival rate and failure rate on the third and fourth row are retrieved from table 13, with the following two rows being the same rates divided by two because in here I make the assumption that the survival and failure rates for one year will be half of the survival and failure rates for two years, which is not necessarily true but is the best approximation possible.

The failure rate of the market (row seven) is simply the percentage of existing companies that failed within the year in study. This information is seen in table 12.

The CIT variation displayed on the rows eight and nine is the result of the calculation of the increase or decrease in percentage of the total CIT paid by the companies with 1 to 4 years and 5 to 9 years, regarding the preceding year. For 2005 for example, we see that with the information provided in tables 48 and 49 there was a decrease in the total CIT paid by the companies with 1 to 4 years, from 517.045.152,24€ to 489.931.069,57€, a decreased of 5,24%. The same logic was applied for the remaining years. This is pertinent because in 2005, the companies created in 2004 will have more than one year and their contribution for the total CIT will be based on the values of that category, but if the companies within that segment changed their overall contribution, that change should also be considered for the companies that entered in this segment.

Finally, the fast growth companies rate is a constant value of 20% and will be used for the calculation of the optimistic model. This rate is supposed to represent an equivalent growth to the one considered for the “gazelle” companies⁵¹, with some conditions that will be explained later.

Table 50

Criteria	Year						
	2004	2005	2006	2007	2008	2009	2010
New Companies (< 1 year)	21.292	21.940	25.514	28.724	29.491	25.875	27.923
CIT paid be New Companies (< 1 year)	128.266.002,29 €	114.460.420,39 €	154.365.894,29 €	225.770.381,23 €	232.018.033,31 €	151.602.493,86 €	166.472.144,93 €
Survival Rate (2 years)	57,47%	56,25%	58,70%	53,79%	54,07%	49,36%	-
Failure Rate New Companies (2 years)	42,53%	43,76%	41,30%	46,21%	45,93%	50,64%	-
Failure Rate New Companies (1 year)	21,26%	21,88%	20,65%	23,11%	22,97%	25,32%	-
Survival Rate (1 years)	78,74%	78,12%	79,35%	76,90%	77,04%	74,68%	-
Failure Rate (Market)	4,44%	4,71%	2,63%	3,48%	12,00%	8,39%	-
CIT Variation 1 to 4 years (%)	-	-5,24%	16,64%	32,24%	1,98%	-21,31%	-1,43%
CIT Variation 5 to 9 years (%)	-	-	-	-	-	-21,59%	-1,41%
Fast Growth Companies Rate	20,00%	20,00%	20,00%	20,00%	20,00%	20,00%	20,00%

With the previous criteria it is possible to simulate the different cases. First the “no model” situation, where there is no deferral of taxes and the behavior of the companies is the normal one. Table 51, shows this situation with the total CIT accumulated by the state from 2004 to 2010 being of 3.041.761.882,96 €. The values present in this table are retrieved from the previous tables, except for the average CIT per company that is calculated by dividing the total CIT by the number of companies.

The assumptions made in this model are that the number of companies will fail at the failure rate of the startups for the first two years and at the market failure rate for the remaining years.

The CIT will also vary in the first two years according to the failure rate. On the remaining years, it will vary according to the CIT variation from one year to the other (rows 8 and 9 from table 50).

These assumptions assume that for the initial years of activity the companies tend to have a higher variability in its CIT contribution (related with the failure rate). From the third year on it is assumed a higher stability as their CIT contribution will change according to the market. For the number of

⁵¹ The term “gazelle” was first used by David Birch in his 1979 report named “The Job Generation Process”. By gazelle, Birch considers “a high-growth company that is increasing its revenues by at least 20% annually for four years or more, starting from a revenue base of at least \$1 million. This growth pace means that the company has effectively doubled its revenues over a four-year period. As gazelle companies are characterized by their rapid growth pace, rather than their absolute size, they can range in size from small companies to very large enterprises” (Investopedia ULC., 2012) (101). In opposition to gazelles, Birch identified the “elephants”, very “large ponderous companies” that “employ thousands of people but create very few new jobs”. Also, Birch identified “mouse” companies as the ones “with little or no potential for generating new jobs”, typically small businesses owned by a single person that don’t grow much (Canada, 1998) (102).

failures is used the real survival rate for the first two years and then it is also assumed that companies will fail at the market rate.

Table 51

No Model (in units €)	2004			2005			2006			2007		
	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT
2004	128.266.002,29 €	21.292	6.024,04 €	100.991.840,23 €	16.765	6.024,04 €	73.717.678,17 €	9.635	7.650,91 €	97.480.987,82 €	9.382	10.390,74 €
2005	- €	-	- €	114.460.420,39 €	21.940	5.217,09 €	89.419.341,92 €	17.140	5.217,09 €	64.378.263,45 €	12.340	5.217,09 €
2006	- €	-	- €	- €	-	- €	154.365.894,29 €	25.514	6.050,21 €	122.489.337,12 €	20.245	6.050,21 €
2007	- €	-	- €	- €	-	- €	- €	-	- €	225.770.381,23 €	28.724	7.859,88 €
2008	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
2009	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
Total	128.266.002,29 €	21.292	6.024,04 €	215.452.260,62 €	38.704	5.620,57 €	317.502.914,37 €	52.289	6.306,07 €	510.118.969,61 €	70.691	7.379,48 €
Cumulative CIT	128.266.002,29 €			343.718.262,91 €			661.221.177,29 €			1.171.340.146,90 €		
	2008			2009			2010					
	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT			
2004	99.407.763,27 €	9.055	10.978,07 €	77.949.430,63 €	7.968	9.782,46 €	76.853.714,60 €	7.300	10.527,83 €			
2005	65.650.741,91 €	11.911	5.511,98 €	51.659.040,63 €	10.481	4.928,83 €	50.932.882,17 €	9.602	5.304,38 €			
2006	90.612.779,95 €	14.977	6.050,21 €	71.301.087,31 €	13.179	5.410,12 €	70.279.635,78 €	12.074	5.820,75 €			
2007	173.606.134,65 €	22.088	7.859,88 €	121.441.888,06 €	15.451	7.859,88 €	119.702.124,95 €	14.155	8.456,46 €			
2008	232.018.033,31 €	29.491	7.867,40 €	178.735.091,96 €	22.718	7.867,40 €	125.452.150,61 €	15.946	7.867,40 €			
2009	- €	-	- €	151.602.493,86 €	25.875	5.859,03 €	113.216.742,41 €	19.323	5.859,03 €			
Total	661.295.453,09 €	87.521	7.653,51 €	652.689.032,45 €	95.673	6.951,29 €	556.437.250,52 €	78.400	7.305,98 €			
Cumulative CIT	1.832.635.599,99 €			2.485.324.632,44 €			3.041.761.882,96 €					
Total CIT Contribution	3.041.761.882,96 €											

The second situation, the realistic one is displayed on table 52, already considering a deferral of taxes. In here the assumptions are that the tax deferral will help the companies survive therefore the failure of startups will always be equal to the market failure (even for the first two years).

Regarding the CIT contribution is considered that this will change according to the change from year to year, for all the years. The total CIT contribution is of 4.556.950.094,64 €, a value superior to the previous one, but still incomplete because it does not account for the situations where there is failure and the deferred CIT is not paid. Also the contribution of the first two years will not be paid on the third and fourth years entirely but repaid for a period of 8 years, which means that by year the CIT contribution will be lower.

These particulars will be taken into account and the model will be better detailed in the following steps, with these tables being used as the basis of that future calculation. The next years will also be incomplete in the same way, but completed in the following steps as well.

Table 52

Realistic Model (in units €)	2004			2005			2006			2007		
	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT
2004	128.266.002,29 €	21.292	6.024,04 €	121.539.674,86 €	20.346	5.973,51 €	141.760.389,87 €	19.388	7.311,81 €	187.457.651,70 €	18.878	9.930,21 €
2005	- €	-	- €	114.460.420,39 €	21.940	5.217,09 €	133.503.350,55 €	20.906	6.385,92 €	176.538.909,15 €	20.356	8.672,75 €
2006	- €	-	- €	- €	-	- €	154.365.894,29 €	25.514	6.050,21 €	204.126.611,61 €	24.843	8.216,82 €
2007	- €	-	- €	- €	-	- €	- €	-	- €	225.770.381,23 €	28.724	7.859,88 €
2008	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
2009	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
Total	128.266.002,29 €	21.292	6.024,04 €	236.000.095,25 €	42.286	5.595,30 €	429.629.634,71 €	65.808	6.582,65 €	793.893.553,69 €	92.800	8.669,92 €
Cumulative CIT	128.266.002,29 €			364.266.097,55 €			793.895.732,25 €			1.587.789.285,95 €		
CIT to be paid	- €			- €			391.566.067,03 €			611.960.331,79 €		
	2008			2009			2010					
	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT	CIT Contribution	Companies	Average CIT			
2004	191.162.874,74 €	18.221	10.491,50 €	149.898.124,17 €	16.034	9.348,88 €	147.791.043,01 €	14.689	10.061,22 €			
2005	180.028.316,10 €	19.647	9.162,97 €	141.660.091,34 €	17.289	8.193,56 €	139.668.810,18 €	15.839	8.817,87 €			
2006	208.161.307,54 €	23.978	8.681,27 €	163.797.287,44 €	21.100	7.762,82 €	161.450.745,54 €	19.331	8.352,02 €			
2007	230.232.880,41 €	27.725	8.304,15 €	181.164.894,37 €	25.277	7.167,25 €	178.569.546,04 €	23.157	7.711,25 €			
2008	232.018.033,31 €	29.491	7.867,40 €	182.569.589,63 €	25.951	7.035,05 €	179.954.117,79 €	23.775	7.569,02 €			
2009	- €	-	- €	151.602.493,86 €	25.875	5.859,03 €	149.430.653,23 €	23.705	6.303,74 €			
Total	1.041.603.412,10 €	119.062	8.901,46 €	970.692.480,81 €	131.526	7.561,10 €	956.864.915,78 €	120.496	8.135,85 €			
Cumulative CIT	2.629.392.698,05 €			3.600.085.178,86 €			4.556.950.094,64 €					
Total CIT Contribution	4.556.950.094,64 €											

The next tables are the characterization of the four situations. They provide information regarding the CIT values paid and meant to be paid by the companies. In the end it will be possible to observe the impact on the state.

For all the following tables, the values were calculated using as basis all the previous tables that were relevant, so there is no new data, it has just been treated and organized.

Table 55 shows the situation without a model. The only row with values is the “CIT Year” because this situation does not simulate a deferral and so it is an ordinary case of taxation.

Table 55

No Model (in units €)		2004	2005	2006	2007	2008	2009	2010	Total
2004	CIT to be Received	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Year	128.266.002,29 €	100.991.840,23 €	73.717.678,17 €	97.480.987,82 €	99.407.763,27 €	77.949.430,63 €	76.853.714,60 €	654.667.417,01 €
	CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
2005	CIT to be Received	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Year	- €	114.460.420,39 €	89.419.341,92 €	64.378.263,45 €	65.650.741,91 €	51.659.040,63 €	50.932.882,17 €	436.500.690,46 €
	CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
2006	CIT to be Received	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Year	- €	- €	154.365.894,29 €	122.489.337,12 €	90.612.779,95 €	71.301.087,31 €	70.279.635,78 €	509.048.734,44 €
	CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
2007	CIT to be Received	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Year	- €	- €	- €	225.770.381,23 €	173.606.134,65 €	121.441.888,06 €	119.702.124,95 €	640.520.528,89 €
	CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
2008	CIT to be Received	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Year	- €	- €	- €	- €	232.018.033,31 €	178.735.091,96 €	125.452.150,61 €	536.205.275,88 €
	CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
2009	CIT to be Received	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	CIT Year	- €	- €	- €	- €	- €	151.602.493,86 €	113.216.742,41 €	264.819.236,27 €
	CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
Total CIT to be Received (A)		- €	- €	- €	- €	- €	- €	- €	- €
Total CIT Deferred (B)		- €	- €	- €	- €	- €	- €	- €	- €
Total CIT Year (C)		128.266.002,29 €	215.452.260,62 €	317.502.914,37 €	510.118.969,61 €	661.295.453,09 €	652.689.032,45 €	556.437.250,52 €	3.041.761.882,96 €
Total CIT Lost (D)		- €	- €	- €	- €	- €	- €	- €	- €
Total Received (B+C)		128.266.002,29 €	215.452.260,62 €	317.502.914,37 €	510.118.969,61 €	661.295.453,09 €	652.689.032,45 €	556.437.250,52 €	3.041.761.882,96 €
Total (A+B+C-D)		128.266.002,29 €	215.452.260,62 €	317.502.914,37 €	510.118.969,61 €	661.295.453,09 €	652.689.032,45 €	556.437.250,52 €	3.041.761.882,96 €

On table 56 is displayed the realistic model. The first row, “CIT to be Received” corresponds to the tax deferred on the first two years of the companies’ activity. On other words, it is the CIT in debt by the company to the state while in activity that is amortized each year, that is why it always decreases after the second year.

The second row, “CIT Deferred” corresponds to the payments of the CIT in debt. The logic of payment already described is implicit in here. With the payment of 25% of the value in debt of the first year being paid at the third year of activity and so on, until the second year of deferral is totally paid. For example, for the companies in activity in 2004, the values deferred would be totally paid in 2013. This value will be deducted each year to the “CIT to be Received”.

The “CIT Year”, on the third row corresponds to the CIT that is meant to be and is actually paid that year (from the third year forward). This information is extracted from the table 52.

The “CIT Lost” is a new value based on the number of companies failed from one year to the other (with less than two years) and its contribution to the CIT, calculated based on the average CIT contribution of the year before. For example for 2004, the average CIT was 6.024,04€ and the number of failed companies the difference between 21.282 and 20.346 (all displayed on table 52), which will be 946 companies times 6.024,04€ of average CIT which gives the expected value of 5.698.105,77€.

The same logic was then applied to the rest of the model, with the total CIT received being 3.088.839.570,03 € and the value in debt of 1.468.110.524,61€ which summed gives the total of 4.281.471.796,06€ to which is already deduced the CIT lost (275.478.298,58€).

Table 56

Realistic Model (in units €)	2004	2005	2006	2007	2008	2009	2010	Total
2004								
CIT to be Received	128.266.002,29 €	249.805.677,16 €	217.739.176,59 €	185.672.676,01 €	153.606.175,44 €	121.539.674,86 €	91.154.756,15 €	91.154.756,15 €
CIT Deferred	- €	- €	32.066.500,57 €	32.066.500,57 €	32.066.500,57 €	32.066.500,57 €	30.384.918,72 €	158.650.921,01 €
CIT Year	- €	- €	141.760.389,87 €	187.457.651,70 €	191.162.874,74 €	149.898.124,17 €	147.791.043,01 €	818.070.083,48 €
CIT Lost	5.698.105,77 €	8.774.680,01 €	8.533.790,13 €	6.521.959,56 €	11.931.372,94 €	6.536.983,23 €	9.234.178,09 €	57.231.069,73 €
2005								
CIT to be Received	- €	114.460.420,39 €	247.963.770,94 €	219.348.665,84 €	190.733.560,74 €	162.118.455,65 €	133.503.350,55 €	133.503.350,55 €
CIT Deferred	- €	- €	- €	28.615.105,10 €	28.615.105,10 €	28.615.105,10 €	28.615.105,10 €	114.460.420,39 €
CIT Year	- €	- €	- €	176.538.909,15 €	180.028.316,10 €	141.660.091,34 €	139.668.810,18 €	637.896.126,77 €
CIT Lost	- €	8.263.586,06 €	8.036.727,16 €	6.142.078,58 €	7.879.701,34 €	4.332.222,57 €	6.105.961,95 €	40.760.277,65 €
2006								
CIT to be Received	- €	- €	154.365.894,29 €	358.492.505,90 €	319.901.032,33 €	281.309.558,76 €	242.718.085,19 €	242.718.085,19 €
CIT Deferred	- €	- €	- €	- €	38.591.473,57 €	38.591.473,57 €	38.591.473,57 €	115.774.420,71 €
CIT Year	- €	- €	- €	- €	208.161.307,54 €	163.797.287,44 €	161.450.745,54 €	533.409.340,52 €
CIT Lost	- €	- €	9.292.625,01 €	7.101.900,05 €	10.875.758,95 €	5.979.440,88 €	8.427.599,91 €	41.677.324,81 €
2007								
CIT to be Received	- €	- €	- €	225.770.381,23 €	456.003.261,64 €	399.560.666,34 €	343.118.071,03 €	343.118.071,03 €
CIT Deferred	- €	- €	- €	- €	- €	56.442.595,31 €	56.442.595,31 €	112.885.190,62 €
CIT Year	- €	- €	- €	- €	- €	181.164.894,37 €	178.569.546,04 €	359.734.440,41 €
CIT Lost	- €	- €	- €	7.854.922,34 €	15.330.324,37 €	10.184.341,05 €	12.757.332,71 €	46.126.920,47 €
2008								
CIT to be Received	- €	- €	- €	- €	232.018.033,31 €	414.587.622,94 €	356.583.114,61 €	356.583.114,61 €
CIT Deferred	- €	- €	- €	- €	- €	- €	58.004.508,33 €	58.004.508,33 €
CIT Year	- €	- €	- €	- €	- €	- €	179.954.117,79 €	179.954.117,79 €
CIT Lost	- €	- €	- €	- €	27.847.862,12 €	14.989.054,95 €	21.418.458,53 €	64.255.375,60 €
2009								
CIT to be Received	- €	- €	- €	- €	- €	151.602.493,86 €	301.033.147,08 €	301.033.147,08 €
CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
CIT Year	- €	- €	- €	- €	- €	- €	- €	- €
CIT Lost	- €	- €	- €	- €	- €	12.713.665,16 €	12.713.665,16 €	25.427.330,32 €
Total CIT to be Received (A)	128.266.002,29 €	364.266.097,55 €	620.068.841,81 €	989.284.228,98 €	1.352.262.063,47 €	1.530.718.472,40 €	1.468.110.524,61 €	1.468.110.524,61 €
Total CIT Deferred (B)	- €	- €	32.066.500,57 €	60.681.605,67 €	99.273.079,24 €	155.715.674,55 €	212.038.601,02 €	559.775.461,06 €
Total CIT Year (C)	- €	- €	141.760.389,87 €	363.996.560,85 €	579.352.498,38 €	636.520.397,32 €	807.434.262,56 €	2.529.064.108,97 €
Total CIT Lost (D)	5.698.105,77 €	17.038.266,07 €	25.863.142,30 €	27.620.860,53 €	73.865.019,72 €	54.735.707,85 €	70.657.196,36 €	275.478.298,58 €
Total Received (B+C)	- €	- €	173.826.890,44 €	424.678.166,52 €	678.625.577,62 €	792.236.071,87 €	1.019.472.863,58 €	3.088.839.570,03 €
Total (A+B+C-D)	122.567.896,53 €	347.227.831,48 €	768.032.589,96 €	1.386.341.534,97 €	1.957.022.621,37 €	2.268.218.836,43 €	2.416.926.191,83 €	4.281.471.796,06 €

The optimistic model, shown on table 57 is deduced on the same way as the realistic model but in this case, the model assumes no failure among companies, therefore there is not "CIT Lost".

The only note to refer is the difference between the total and total received that resides on the deferred CIT. In this case, as expected, the total will be higher than the realistic model achieving a value of 6.331.989.962,84€.

Table 57

Optimistic Model (in units €)	2004	2005	2006	2007	2008	2009	2010	Total
CIT to be Received	128.266.002,29 €	242.726.422,68 €	210.659.922,11 €	178.593.421,54 €	146.526.920,96 €	114.460.420,39 €	75.980.619,70 €	75.980.619,70 €
CIT Deferred	- €	- €	32.066.500,57 €	32.066.500,57 €	32.066.500,57 €	32.066.500,57 €	38.479.800,69 €	166.745.802,98 €
CIT Year	- €	- €	184.703.043,30 €	221.643.651,96 €	265.972.382,36 €	319.166.858,83 €	383.000.230,59 €	1.374.486.167,05 €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
CIT to be Received	- €	153.919.202,75 €	291.271.707,22 €	262.656.602,12 €	234.041.497,03 €	205.426.391,93 €	176.811.286,83 €	176.811.286,83 €
CIT Deferred	- €	- €	- €	28.615.105,10 €	28.615.105,10 €	28.615.105,10 €	28.615.105,10 €	114.460.420,39 €
CIT Year	- €	- €	- €	164.823.005,36 €	197.787.606,43 €	237.345.127,72 €	284.814.153,26 €	884.769.892,77 €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
CIT to be Received	- €	- €	154.365.894,29 €	339.604.967,43 €	301.013.493,86 €	262.422.020,29 €	223.830.546,71 €	223.830.546,71 €
CIT Deferred	- €	- €	- €	- €	38.591.473,57 €	38.591.473,57 €	38.591.473,57 €	115.774.420,71 €
CIT Year	- €	- €	- €	- €	222.286.887,77 €	266.744.265,33 €	320.093.118,39 €	809.124.271,49 €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
CIT to be Received	- €	- €	- €	225.770.381,23 €	496.694.838,71 €	440.252.243,40 €	383.809.648,09 €	383.809.648,09 €
CIT Deferred	- €	- €	- €	- €	- €	56.442.595,31 €	56.442.595,31 €	112.885.190,62 €
CIT Year	- €	- €	- €	- €	- €	325.109.348,97 €	390.131.218,77 €	715.240.567,74 €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
CIT to be Received	- €	- €	- €	- €	232.018.033,31 €	510.439.673,29 €	452.435.164,96 €	452.435.164,96 €
CIT Deferred	- €	- €	- €	- €	- €	- €	58.004.508,33 €	58.004.508,33 €
CIT Year	- €	- €	- €	- €	- €	- €	334.105.967,97 €	334.105.967,97 €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
CIT to be Received	- €	- €	- €	- €	- €	151.602.493,86 €	333.525.486,49 €	333.525.486,49 €
CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
CIT Year	- €	- €	- €	- €	- €	- €	- €	- €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
Total CIT to be Received (A)	128.266.002,29 €	396.645.625,44 €	656.297.523,62 €	1.006.625.372,32 €	1.410.294.783,87 €	1.684.603.243,15 €	1.646.392.752,79 €	1.646.392.752,79 €
Total CIT Deferred (B)	- €	- €	32.066.500,57 €	60.681.605,67 €	99.273.079,24 €	155.715.674,55 €	220.133.482,99 €	567.870.343,03 €
Total CIT Year (C)	- €	- €	184.703.043,30 €	386.466.657,32 €	686.046.876,56 €	1.148.365.600,85 €	1.712.144.688,98 €	4.117.726.867,02 €
Total CIT Lost (D)	- €	- €	- €	- €	- €	- €	- €	- €
Total Received (B+C)	- €	- €	216.769.543,88 €	447.148.263,00 €	785.319.955,80 €	1.304.081.275,40 €	1.932.278.171,98 €	4.685.597.210,05 €
Total (A+B+C+D)	128.266.002,29 €	396.645.625,44 €	873.067.067,49 €	1.453.773.635,31 €	2.195.614.739,67 €	2.988.684.518,54 €	3.578.670.924,76 €	6.331.989.962,84 €

Finally the pessimistic model, calculated under the same logic is displayed on table 58. In here the “CIT Lost” will be higher and the “Total Received” lower than the other models, which was expectable once this is the worst scenario, where the number of companies failed is equal to the no model situation but with these leaving a debt equal to their CIT deferred.

Table 58

Pessimistic Model (in units €)	2004	2005	2006	2007	2008	2009	2010	Total
CIT to be Received	128.266.002,29 €	229.257.842,53 €	197.191.341,95 €	165.124.841,38 €	133.058.340,81 €	100.991.840,23 €	75.743.880,17 €	75.743.880,17 €
CIT Deferred	- €	- €	32.066.500,57 €	32.066.500,57 €	32.066.500,57 €	32.066.500,57 €	25.247.960,06 €	153.513.962,35 €
CIT Year	- €	- €	73.717.678,17 €	97.480.987,82 €	99.407.763,27 €	77.949.430,63 €	76.853.714,60 €	425.409.574,48 €
CIT Lost	27.274.162,06 €	42.949.304,85 €	1.940.460,57 €	3.391.523,66 €	11.931.372,94 €	6.536.983,23 €	9.234.178,09 €	103.257.985,40 €
CIT to be Received	- €	114.460.420,39 €	203.879.762,31 €	175.264.657,21 €	146.649.552,11 €	118.034.447,02 €	89.419.341,92 €	89.419.341,92 €
CIT Deferred	- €	- €	- €	28.615.105,10 €	28.615.105,10 €	28.615.105,10 €	28.615.105,10 €	114.460.420,39 €
CIT Year	- €	- €	- €	64.378.263,45 €	65.650.741,91 €	51.659.040,63 €	50.932.882,17 €	232.620.928,16 €
CIT Lost	- €	25.041.078,47 €	25.041.078,47 €	2.239.825,51 €	7.879.701,34 €	4.332.222,57 €	6.105.961,95 €	70.639.868,32 €
CIT to be Received	- €	- €	154.365.894,29 €	276.855.231,40 €	238.263.757,83 €	199.672.284,26 €	161.080.810,69 €	161.080.810,69 €
CIT Deferred	- €	- €	- €	- €	38.591.473,57 €	38.591.473,57 €	38.591.473,57 €	115.774.420,71 €
CIT Year	- €	- €	- €	- €	90.612.779,95 €	71.301.087,31 €	70.279.635,78 €	232.193.503,03 €
CIT Lost	- €	- €	31.876.557,17 €	31.876.557,17 €	10.875.758,95 €	5.979.440,88 €	8.427.599,91 €	89.035.914,08 €
CIT to be Received	- €	- €	- €	225.770.381,23 €	399.376.515,88 €	342.933.920,57 €	286.491.325,26 €	286.491.325,26 €
CIT Deferred	- €	- €	- €	- €	- €	56.442.595,31 €	56.442.595,31 €	112.885.190,62 €
CIT Year	- €	- €	- €	- €	- €	121.441.888,06 €	119.702.124,95 €	241.144.013,01 €
CIT Lost	- €	- €	- €	52.164.246,58 €	52.164.246,58 €	10.184.341,05 €	31.174.293,82 €	145.687.128,03 €
CIT to be Received	- €	- €	- €	- €	232.018.033,31 €	178.735.091,96 €	120.730.583,63 €	120.730.583,63 €
CIT Deferred	- €	- €	- €	- €	- €	- €	58.004.508,33 €	58.004.508,33 €
CIT Year	- €	- €	- €	- €	- €	- €	125.452.150,61 €	125.452.150,61 €
CIT Lost	- €	- €	- €	- €	53.282.941,35 €	53.282.941,35 €	53.282.941,35 €	159.848.824,05 €
CIT to be Received	- €	- €	- €	- €	- €	151.602.493,86 €	264.819.236,27 €	264.819.236,27 €
CIT Deferred	- €	- €	- €	- €	- €	- €	- €	- €
CIT Year	- €	- €	- €	- €	- €	- €	- €	- €
CIT Lost	- €	- €	- €	- €	- €	- €	- €	- €
Total CIT to be Received (A)	128.266.002,29 €	343.718.262,91 €	555.436.998,55 €	732.128.717,46 €	887.065.834,32 €	652.689.032,45 €	708.039.744,38 €	708.039.744,38 €
Total CIT Deferred (B)	- €	- €	32.066.500,57 €	60.681.605,67 €	99.273.079,24 €	155.715.674,55 €	206.901.642,36 €	554.638.502,40 €
Total CIT Year (C)	- €	- €	73.717.678,17 €	161.859.251,27 €	255.671.285,13 €	322.351.446,63 €	443.220.508,10 €	1.256.820.169,30 €
Total CIT Lost (D)	27.274.162,06 €	67.990.383,33 €	58.858.096,21 €	89.672.152,92 €	136.134.021,17 €	118.701.680,53 €	146.610.726,57 €	645.241.222,78 €
Total Received (B+C)	- €	- €	105.784.178,74 €	222.540.856,94 €	354.944.364,37 €	478.067.121,18 €	650.122.150,47 €	1.811.458.671,69 €
Total (A+B+C+D)	100.991.840,23 €	275.727.879,59 €	602.363.081,08 €	864.997.421,47 €	1.105.876.177,53 €	1.012.054.473,10 €	1.211.551.168,28 €	1.874.257.193,30 €

Part 3 - Model for the SC, Government Side

The third appendix starts with the SC received by the government. The data collected was already divided by company size and available for most of the years (except for 2010 like is indicated on table 59).

Table 59

Year / Size	SC Received by the Government (in units €)				TOTAL
	< 10	10 to 49	50 to 249	> 250	
2004	2.300.909.704,00 €	2.350.999.437,00 €	2.264.896.135,00 €	3.348.474.011,00 €	10.265.279.287,00 €
2005	2.420.517.961,00 €	2.487.814.260,00 €	2.291.783.710,00 €	3.402.559.867,00 €	10.602.675.798,00 €
2006	2.165.801.158,00 €	2.465.623.925,00 €	2.336.059.570,00 €	3.640.766.131,00 €	10.608.250.784,00 €
2007	2.277.357.007,00 €	2.549.324.790,00 €	2.470.876.917,00 €	3.608.768.236,00 €	10.906.326.950,00 €
2008	2.337.672.884,00 €	2.643.937.892,00 €	2.590.661.626,00 €	3.857.498.739,00 €	11.429.771.141,00 €
2009	2.269.296.191,00 €	2.531.963.069,00 €	2.506.567.899,00 €	4.032.363.678,00 €	11.340.190.837,00 €
2010 *	2.303.484.537,50 €	2.587.950.480,50 €	2.548.614.762,50 €	3.944.931.208,50 €	11.384.980.989,00 €

* the values were calculated based on the average of the two preceding or proceeding years

Source: (INE, 2011) (76)

The second table of this third part, table 60 gives us the relation between the average of employees by company size and the number of companies existent on that segment, by year. For example for 2005, the companies comprised on the segment of 1 to 4 employees had each, on average, two employees. The values are constant across the years which can be explained by the fact that it is a factor not necessarily indexed to the year and its environment, but to the companies' directly.

Table 60

Year / Size	Average Workers by Company Size (in units)													
	1 to 4		5 to 9		10 to 49		50 to 99		100 to 249		250 a 499		> 500	
	Companies	Employees	Companies	Employees	Companies	Employees	Companies	Employees	Companies	Employees	Companies	Employees	Companies	Employees
2004 ²	228.337	2	62.183	6	44.235	19	4.473	68	2.225	150	569	341	373	1.425
2005	226.368	2	62.591	6	44.240	19	4.456	68	2.183	149	574	340	370	1.418
2006	230.306	2	61.775	6	44.229	19	4.490	68	2.266	150	564	342	376	1.431
2007	238.296	2	62.845	6	45.822	19	4.661	68	2.327	150	570	338	392	1.451
2008	240.824	2	62.715	6	45.551	19	4.752	68	2.398	150	568	344	401	1.504
2009	238.729	2	60.138	6	43.161	19	4.556	68	2.267	150	552	344	378	1.518
2010 ²	239.777	2	61.427	6	44.356	19	4.654	68	2.333	150	560	344	390	1.511

1 - the employees columns are the average employees per company in each segment

2 - the values were calculated based on the average of the two preceding or proceeding years

Source: (Gabinete de Estratégia e Planeamento (GEP), 2011, p. 43) (77)

Table 60 is divided by company size in different ranges than the ones used on the previous analyses. To maintain some consistency and allow the making of cross analyses, table 61 was calculated from table 60 to display the results according to the ranges used.

The values were calculated using the average of the segments. For example, for the 2005 companies with less than 10 employees, we see that the multiplication made was 226.368 companies times 2 employees plus 62.591 companies times 6 employees dividing by the sum of the number of companies. This way we have the average from the segments from 1 to 4 and 5 to 9 which is correspondent to the segment of less than 10 employees.

The reasoning was used for the rest of the years, even for 2004 and 2010 although these were calculated with the average of the previous two years.

Table 61

Average Number of Workers by Company Size (in units)				
Year / Size	< 10	10 to 49	50 to 249	> 250
2004 *	3	19	95	770
2005	3	19	95	763
2006	3	19	96	778
2007	3	19	95	792
2008	3	19	96	824
2009	3	19	95	821
2010 *	3	19	95	823
TOTAL	20	133	667	5.570

* the values were calculated based on the average of the two preceding or proceeding years

From Gabinete de Estratégia e Planeamento (2011) (77), we can have the information displayed on tables 62 and 63 respectively, that give us the average gain per worker and by company size (table 62) and age (table 63), for the year of 2009.

Table 62

Average Gain per Worker/Month by Company Size (in units €)							
Year / Size	1 to 4	5 to 9	10 to 49	50 to 99	100 to 249	250 a 499	> 500
2009	680,97 €	789,78 €	917,33 €	1.059,24 €	1.182,91 €	1.299,57 €	1.416,52 €

(Gabinete de Estratégia e Planeamento (GEP), 2011, p. 144) (77)

Table 63

Average Gain per Worker/Month by Company Age (in units €)						
Year / Age	< 1	1 to 4	5 to 9	10 to 14	15 to 19	> 20
2009	806,38 €	916,91 €	1.025,44 €	1.173,79 €	1.293,02 €	1.449,33 €

(Gabinete de Estratégia e Planeamento (GEP), 2011, p. 151) (77)

Trying to join both tables, we have table 64. The best approximation to reach the values displayed was by calculating the average of the company's size and age.

For example, for 2004, we have the workers from the companies with less than one year receiving each on average 806,38€ and for the companies with less than 10 employees receiving each employee on average 735,38€ (calculated by the average of the correspondent values on table 62). Summing and dividing by two we have the average which is 770,88€ as it is shown.

Applying the same logic for the rest of the rubrics, table 64 is reached.

Table 64

Average Gain per Worker/Month by Company Age and Size (in units €)					
2009					
	< 10	10 to 49	50 to 249	> 250	AVERAGE
< 1 Year	770,88 €	861,86 €	963,73 €	1.082,21 €	806,38 €
1 to 4 Years	826,14 €	917,12 €	1.018,99 €	1.137,48 €	916,91 €
5 to 9 Years	880,41 €	971,39 €	1.073,26 €	1.191,74 €	1.025,44 €
10 to 19 Years	984,39 €	1.075,37 €	1.177,24 €	1.295,73 €	1.233,41 €
20 to 49 Years	1.092,35 €	1.183,33 €	1.285,20 €	1.403,69 €	1.449,33 €
> 50 Years	1.092,35 €	1.183,33 €	1.285,20 €	1.403,69 €	1.449,33 €
AVERAGE	735,38 €	917,33 €	1.121,08 €	1.358,05 €	-

Gabinete de Estratégia e Planeamento (2011) (64) also provides information regarding the other years but on this case just regarding the company's size and not the company's age. This will force some further calculation as we'll see.

Table 65

Size / Year	Gain per Worker/Month by Company Size (in units and units €)											
	2004		2005		2006		2007		2008		2009	
	Gain	Employees	Gain	Employees	Gain	Employees	Gain	Employees	Gain	Employees	Gain	Employees
1 to 4	607,50 €	481.510	626,30 €	521.237	650,60 €	530.106	680,50 €	545.211	721,50 €	549.547	750,40 €	538.897
5 to 9	735,00 €	433.419	761,20 €	453.890	794,10 €	449.986	824,40 €	460.577	863,10 €	459.373	884,10 €	441.432
10 to 19	793,10 €	399.676	819,80 €	422.309	841,60 €	423.355	871,50 €	438.300	914,30 €	440.128	938,10 €	413.562
20 a 49	870,50 €	491.179	899,50 €	518.556	924,20 €	524.144	946,20 €	540.849	992,10 €	541.613	1.023,50 €	506.295
50 to 99	976,80 €	304.823	1.013,10 €	321.364	1.049,90 €	325.812	1.067,60 €	339.538	1.106,40 €	346.900	1.134,90 €	328.675
100 to 149	1.055,50 €	148.825	1.080,70 €	156.975	1.121,00 €	159.834	1.158,20 €	163.320	1.209,00 €	164.178	1.243,50 €	156.982
150 to 199	1.115,10 €	95.528	1.188,40 €	100.493	1.193,10 €	104.728	1.219,60 €	109.825	1.250,30 €	113.553	1.296,20 €	101.996
200 to 249	1.115,50 €	72.253	1.140,30 €	73.613	1.215,50 €	77.817	1.251,10 €	76.771	1.283,80 €	78.366	1.381,40 €	71.196
250 to 499	1.172,60 €	164.395	1.214,10 €	175.779	1.239,80 €	179.217	1.269,80 €	187.034	1.320,10 €	188.787	1.346,70 €	179.603
500 to 999	1.176,90 €	100.692	1.212,30 €	102.848	1.230,60 €	107.234	1.273,40 €	114.587	1.351,00 €	125.991	1.406,10 €	115.708
> 1000	1.336,10 €	99.143	1.392,60 €	113.152	1.388,30 €	108.760	1.378,50 €	118.165	1.382,80 €	129.581	1.282,70 €	144.435

Source: (Gabinete de Estratégia e Planeamento (GEP), 2011, p. 38) (64)

With no information regarding the year of 2010, this will have to be calculated based on the average of the two preceding years.

To do that, for the year of 2008 was calculated the average by company size according to the ranges previously used (like it was done for 2009). These values are shown on the “Average” row of table 66. For the age segments, the logic applied was of seeing the change on the average from 2009 to 2008. We can see that the value for 2009 for the first column (735,38€) is lower by 6,88% in comparison to the value of 2008 (785,97€). The assumption is that this change will be equal for all the companies within this column, in spite of their age. For example, for the companies with less than one year, the change was from 770,88€ to 823,92€, a change exactly of 6,88%. By applying the logic to all the remaining segments the table 57 is completed.

Table 66

	Average Gain per Worker/Month by Company Age and Size (in units €)			
	2008			
	< 10	10 to 49	50 to 249	> 250
< 1 Year	823,92 €	899,33 €	1.008,69 €	1.073,53 €
1 to 4 Years	882,98 €	957,00 €	1.066,54 €	1.128,35 €
5 to 9 Years	940,98 €	1.013,63 €	1.123,33 €	1.182,18 €
10 to 19 Years	1.052,12 €	1.122,13 €	1.232,17 €	1.285,33 €
20 to 49 Years	1.167,51 €	1.234,79 €	1.345,17 €	1.392,42 €
> 50 Years	1.167,51 €	1.234,79 €	1.345,17 €	1.392,42 €
AVERAGE	785,97 €	957,22 €	1.173,38 €	1.347,15 €

For 2010, like mentioned, the values were calculated as the average of the previous 2 years (2008 and 2009). The final result is the table 67.

Table 67

	Average Gain per Worker/Month by Company Age and Size (in units €)			
	2010			
	< 10	10 to 49	50 to 249	> 250
< 1 Year	797,40 €	880,59 €	986,21 €	1.077,87 €
1 to 4 Years	854,56 €	937,06 €	1.042,76 €	1.132,91 €
5 to 9 Years	910,70 €	992,51 €	1.098,29 €	1.186,96 €
10 to 19 Years	1.018,26 €	1.098,75 €	1.204,70 €	1.290,53 €
20 to 49 Years	1.129,93 €	1.209,06 €	1.315,18 €	1.398,05 €
> 50 Years	1.129,93 €	1.209,06 €	1.315,18 €	1.398,05 €

For the remaining years, the logic applied was the same as in 2008, with the values being calculated according to the variation of the average of the companies by size in relation with the year of 2009. Tables 68 to 71 show the final values.

Table 68

Average Gain per Worker/Month by Company Age and Size (in units €)				
2007				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	782,43 €	857,56 €	974,59 €	1.037,06 €
1 to 4 Years	838,52 €	912,55 €	1.030,47 €	1.090,02 €
5 to 9 Years	893,60 €	966,55 €	1.085,35 €	1.142,02 €
10 to 19 Years	999,14 €	1.070,01 €	1.190,50 €	1.241,66 €
20 to 49 Years	1.108,72 €	1.177,44 €	1.299,68 €	1.345,12 €
> 50 Years	1.108,72 €	1.177,44 €	1.299,68 €	1.345,12 €
AVERAGE	746,40 €	912,76 €	1.133,71 €	1.301,38 €

Table 69

Average Gain per Worker/Month by Company Age and Size (in units €)				
2006				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	751,08 €	833,63 €	953,04 €	1.018,56 €
1 to 4 Years	804,92 €	887,09 €	1.007,69 €	1.070,58 €
5 to 9 Years	857,79 €	939,58 €	1.061,35 €	1.121,65 €
10 to 19 Years	959,10 €	1.040,16 €	1.164,18 €	1.219,52 €
20 to 49 Years	1.064,29 €	1.144,58 €	1.270,94 €	1.321,13 €
> 50 Years	1.064,29 €	1.144,58 €	1.270,94 €	1.321,13 €
AVERAGE	716,48 €	887,29 €	1.108,64 €	1.278,17 €

Table 70

Average Gain per Worker/Month by Company Age and Size (in units €)				
2005				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	722,36 €	811,49 €	929,47 €	1.008,21 €
1 to 4 Years	774,15 €	863,53 €	982,77 €	1.059,70 €
5 to 9 Years	825,00 €	914,62 €	1.035,11 €	1.110,25 €
10 to 19 Years	922,43 €	1.012,53 €	1.135,39 €	1.207,12 €
20 to 49 Years	1.023,60 €	1.114,18 €	1.239,52 €	1.307,70 €
> 50 Years	1.023,60 €	1.114,18 €	1.239,52 €	1.307,70 €
AVERAGE	689,09 €	863,73 €	1.081,23 €	1.265,18 €

Table 71

Average Gain per Worker/Month by Company Age and Size (in units €)				
2004				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	700,14 €	785,23 €	888,04 €	970,85 €
1 to 4 Years	750,34 €	835,58 €	938,97 €	1.020,42 €
5 to 9 Years	799,62 €	885,02 €	988,97 €	1.069,10 €
10 to 19 Years	894,07 €	979,76 €	1.084,79 €	1.162,39 €
20 to 49 Years	992,12 €	1.078,13 €	1.184,27 €	1.259,24 €
> 50 Years	992,12 €	1.078,13 €	1.184,27 €	1.259,24 €
AVERAGE	667,90 €	835,78 €	1.033,03 €	1.218,29 €

Knowing what the average gain per worker is, the number of workers is important to know as well, in order to calculate their contribution for the SC received by the government.

The procedures to achieve the values displayed on the tables 72 to 78 were simple. Having the number of companies existent (calculated on part 2 for the CIT Model) which are displayed on the tables 42, 38, 34, 30, 26, 22 and 17 corresponding to the years of 2004, 2005, 2006, 2007, 2008, 2010 and 2009, respectively. The next step was to multiply these tables by the average number of employees for each year, displayed on table 61.

These procedures tend to, once again, lower the bias of the model as much as possible.

Tables 72 to 78 show the final results.

Table 72

Number of Workers by Company Age and Size (in units)					
2010					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	74.529	24.218	16.366	5.800	120.913
1 to 4 Years	194.971	109.528	56.951	61.603	423.053
5 to 9 Years	199.722	160.961	79.562	90.351	530.596
10 to 19 Years	210.223	249.824	166.976	238.199	865.222
20 to 49 Years	151.214	247.289	261.106	265.305	924.914
> 50 Years	11.205	35.065	75.021	104.315	225.605
TOTAL	841.864	826.884	655.982	765.573	3.090.304

Table 73

Number of Workers by Company Age and Size (in units)					
2009					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	68.906	21.799	14.771	5.198	110.673
1 to 4 Years	201.079	109.972	57.338	61.588	429.977
5 to 9 Years	205.979	161.614	80.101	90.329	538.024
10 to 19 Years	216.809	250.838	168.108	238.141	873.895
20 to 49 Years	155.951	248.292	262.877	265.239	932.359
> 50 Years	11.556	35.207	75.529	104.289	226.582
TOTAL	860.280	827.722	658.724	764.784	3.111.509

Table 74

Number of Workers by Company Age and Size (in units)					
2008					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	78.892	26.329	17.743	6.331	129.294
1 to 4 Years	189.140	109.125	56.584	61.624	416.473
5 to 9 Years	193.749	160.370	79.048	90.382	523.549
10 to 19 Years	203.935	248.907	165.898	238.280	857.020
20 to 49 Years	146.692	246.380	259.421	265.394	917.887
> 50 Years	10.870	34.936	74.537	104.350	224.693
TOTAL	823.277	826.047	653.231	766.361	3.068.915

Table 75

Number of Workers by Company Age and Size (in units)					
2007					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	77.025	25.972	16.982	5.907	125.887
1 to 4 Years	188.709	110.003	55.344	58.758	412.815
5 to 9 Years	193.307	161.660	77.317	86.179	518.463
10 to 19 Years	203.471	250.909	162.264	227.198	843.842
20 to 49 Years	146.357	248.363	253.739	253.052	901.510
> 50 Years	10.845	35.217	72.904	99.497	218.463
TOTAL	819.715	832.124	638.550	730.590	3.020.979

Table 76

Number of Workers by Company Age and Size (in units)					
2006					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	68.734	22.789	14.972	5.165	111.660
1 to 4 Years	185.251	106.185	53.677	56.516	401.629
5 to 9 Years	189.766	156.048	74.987	82.890	503.691
10 to 19 Years	199.743	242.199	157.375	218.529	817.846
20 to 49 Years	143.676	239.741	246.093	243.396	872.906
> 50 Years	10.646	33.995	70.707	95.701	211.049
TOTAL	797.817	800.957	617.811	702.197	2.918.782

Table 77

Number of Workers by Company Age and Size (in units)					
2005					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	59.527	19.654	12.538	4.376	96.095
1 to 4 Years	187.082	106.786	52.415	55.846	402.130
5 to 9 Years	191.641	156.932	73.225	81.908	503.706
10 to 19 Years	201.717	243.571	153.676	215.940	814.904
20 to 49 Years	145.096	241.099	240.310	240.512	867.017
> 50 Years	10.752	34.187	69.046	94.567	208.551
TOTAL	795.816	802.228	601.210	693.150	2.892.403

Table 78

Number of Workers by Company Age and Size (in units)					
2004					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	57.439	19.775	12.890	4.401	94.505
1 to 4 Years	169.049	100.615	50.463	52.596	372.722
5 to 9 Years	173.169	147.863	70.497	77.140	468.669
10 to 19 Years	182.273	229.495	147.952	203.370	763.089
20 to 49 Years	131.110	227.165	231.358	226.512	816.145
> 50 Years	9.715	32.211	66.474	89.062	197.462
TOTAL	722.755	757.124	579.633	653.080	2.712.593

Finally, to reach the global gain of the workers by segments a multiplication between the average gain per worker and the number of workers is done, matching each cell to its correspondent. For example for the year of 2010 (table 79), the companies with less than one year and less than 10 employees presents the value of 59.429.359,22€ that was achieved by multiplying the average gain of 797,40€ from table 67 with the number of employees (74.529) from table 72.

For the rest of the cells, the logic was maintained and also for the rest of the years, with the final result being displayed from the tables 79 to 85.

Table 79

Global Gain of Workers by Company Age and Size (in units €)					
2010					
	< 10	10 to 49	50 to 249	> 250	
< 1 Year	59.429.359,22 €	21.326.231,87 €	16.140.198,81 €	6.251.350,98 €	
1 to 4 Years	166.615.106,45 €	102.634.045,06 €	59.386.930,09 €	69.791.136,15 €	
5 to 9 Years	181.886.151,85 €	159.754.658,17 €	87.382.270,45 €	107.243.579,91 €	
10 to 19 Years	214.060.590,90 €	274.494.340,39 €	201.156.058,19 €	307.402.238,92 €	
20 to 49 Years	170.861.606,94 €	298.986.624,30 €	343.402.965,04 €	370.910.514,67 €	
> 50 Years	12.660.968,00 €	42.395.333,24 €	98.666.141,77 €	145.837.880,38 €	
TOTAL	805.513.783,35 €	899.591.233,03 €	806.134.564,35 €	1.007.436.701,01 €	

Table 80

Global Gain of Workers by Company Age and Size (in units €)					
2009					
	< 10	10 to 49	50 to 249	> 250	
< 1 Year	53.117.703,80 €	18.787.191,10 €	14.235.065,37 €	5.625.276,44 €	
1 to 4 Years	166.119.928,66 €	100.857.520,64 €	58.426.595,00 €	70.055.037,66 €	
5 to 9 Years	181.345.588,72 €	156.989.415,39 €	85.969.227,88 €	107.649.100,50 €	
10 to 19 Years	213.424.405,78 €	269.743.032,97 €	197.903.200,69 €	308.564.620,26 €	
20 to 49 Years	170.353.808,60 €	293.811.372,36 €	337.849.859,07 €	372.313.040,11 €	
> 50 Years	12.623.339,77 €	41.661.499,31 €	97.070.629,80 €	146.389.337,75 €	
TOTAL	796.984.775,33 €	881.850.031,76 €	791.454.577,81 €	1.010.596.412,72 €	

Table 81

Global Gain of Workers by Company Age and Size (in units €)				
2008				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	65.000.092,91 €	23.678.398,78 €	17.896.880,82 €	6.796.079,44 €
1 to 4 Years	167.007.489,73 €	104.433.129,64 €	60.348.709,17 €	69.533.401,56 €
5 to 9 Years	182.314.498,87 €	162.555.016,87 €	88.797.437,72 €	106.847.535,64 €
10 to 19 Years	214.564.709,64 €	279.305.984,84 €	204.413.806,79 €	306.267.020,43 €
20 to 49 Years	171.263.990,84 €	304.227.596,95 €	348.964.420,86 €	369.540.763,83 €
> 50 Years	12.690.784,93 €	43.138.486,16 €	100.264.052,81 €	145.299.309,62 €
TOTAL	812.841.566,93 €	917.338.613,24 €	820.685.308,17 €	1.004.284.110,52 €

Table 82

Global Gain of Workers by Company Age and Size (in units €)				
2007				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	60.267.053,93 €	22.272.659,78 €	16.550.649,42 €	6.125.766,63 €
1 to 4 Years	158.236.741,01 €	100.383.756,25 €	57.031.011,66 €	64.047.306,90 €
5 to 9 Years	172.739.870,45 €	156.251.979,11 €	83.915.758,52 €	98.417.404,48 €
10 to 19 Years	203.296.393,73 €	268.475.952,01 €	193.176.065,54 €	282.102.952,09 €
20 to 49 Years	162.269.703,03 €	292.431.233,67 €	329.779.944,39 €	340.384.479,68 €
> 50 Years	12.024.301,74 €	41.465.800,12 €	94.751.991,27 €	133.835.383,65 €
TOTAL	768.834.063,89 €	881.281.380,93 €	775.205.420,80 €	924.913.293,42 €

Table 83

Global Gain of Workers by Company Age and Size (in units €)				
2006				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	51.624.768,46 €	18.998.056,96 €	14.268.793,75 €	5.260.417,26 €
1 to 4 Years	149.112.695,71 €	94.195.397,22 €	54.089.433,58 €	60.504.789,83 €
5 to 9 Years	162.779.564,18 €	146.619.510,85 €	79.587.503,62 €	92.973.844,84 €
10 to 19 Years	191.574.176,16 €	251.925.210,69 €	183.212.320,15 €	266.499.571,24 €
20 to 49 Years	152.913.114,22 €	274.403.720,73 €	312.770.366,14 €	321.557.492,47 €
> 50 Years	11.330.971,77 €	38.909.557,28 €	89.864.818,97 €	126.432.822,12 €
TOTAL	719.335.290,51 €	825.051.453,72 €	733.793.236,20 €	873.228.937,77 €

Table 84

Global Gain of Workers by Company Age and Size (in units €)				
2005				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	42.999.806,89 €	15.949.150,25 €	11.653.426,36 €	4.412.397,08 €
1 to 4 Years	144.829.148,94 €	92.212.758,65 €	51.512.399,20 €	59.180.294,23 €
5 to 9 Years	158.103.410,53 €	143.533.441,83 €	75.795.640,41 €	90.938.577,07 €
10 to 19 Years	186.070.842,32 €	246.622.651,83 €	174.483.361,16 €	260.665.694,11 €
20 to 49 Years	148.520.393,17 €	268.628.030,88 €	297.868.749,83 €	314.518.355,81 €
> 50 Years	11.005.467,98 €	38.090.583,20 €	85.583.303,84 €	123.665.112,04 €
TOTAL	691.529.069,85 €	805.036.616,64 €	696.896.880,80 €	853.380.430,35 €

Table 85

Global Gain of Workers by Company Age and Size (in units €)				
2004				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	40.215.742,53 €	15.527.936,13 €	11.446.711,49 €	4.273.098,38 €
1 to 4 Years	126.843.974,09 €	84.072.018,81 €	47.383.065,40 €	53.669.765,51 €
5 to 9 Years	138.469.811,20 €	130.862.002,16 €	69.719.714,91 €	82.470.899,66 €
10 to 19 Years	162.964.191,09 €	224.850.275,89 €	160.496.436,60 €	236.394.003,47 €
20 to 49 Years	130.076.832,20 €	244.912.972,95 €	273.991.013,27 €	285.232.214,96 €
> 50 Years	9.638.786,85 €	34.727.864,93 €	78.722.780,26 €	112.150.127,86 €
TOTAL	608.209.337,96 €	734.953.070,87 €	641.759.721,92 €	774.190.109,84 €

With all the tables complete, now comes an important step. The goal of all the previous calculations was to find the contribution given by each segment to the total SC received by the government every year.

The SC paid by each company will be a percentage of the income received by the workers and as it can vary under some circumstances, to calculate its contribution an average would have to be estimated. But, by having an equal percentage charged, the yearly contribution will have an equal distribution. In face of this reality it is pointless to calculate an average for the SC and is possible to calculate immediately the percentage of the contribution of each segment by dividing each cell of the global gain by its correspondent total (because the distribution will be equal).

The following tables (from 86 to 92) display this information.

Table 86

Global Gain of Workers by Company Age and Size (%)				
2010				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,38%	2,37%	2,00%	0,62%
1 to 4 Years	20,68%	11,41%	7,37%	6,93%
5 to 9 Years	22,58%	17,76%	10,84%	10,65%
10 to 19 Years	26,57%	30,51%	24,95%	30,51%
20 to 49 Years	21,21%	33,24%	42,60%	36,82%
> 50 Years	1,57%	4,71%	12,24%	14,48%
TOTAL	100,00%	100,00%	100,00%	100,00%

Table 87

Global Gain of Workers by Company Age and Size (%)				
2009				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	6,66%	2,13%	1,80%	0,56%
1 to 4 Years	20,84%	11,44%	7,38%	6,93%
5 to 9 Years	22,75%	17,80%	10,86%	10,65%
10 to 19 Years	26,78%	30,59%	25,00%	30,53%
20 to 49 Years	21,37%	33,32%	42,69%	36,84%
> 50 Years	1,58%	4,72%	12,26%	14,49%
TOTAL	100,00%	100,00%	100,00%	100,00%

Table 88

Global Gain of Workers by Company Age and Size (%)				
2008				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	8,00%	2,58%	2,18%	0,68%
1 to 4 Years	20,55%	11,38%	7,35%	6,92%
5 to 9 Years	22,43%	17,72%	10,82%	10,64%
10 to 19 Years	26,40%	30,45%	24,91%	30,50%
20 to 49 Years	21,07%	33,16%	42,52%	36,80%
> 50 Years	1,56%	4,70%	12,22%	14,47%
TOTAL	100,00%	100,00%	100,00%	100,00%

Table 89

Global Gain of Workers by Company Age and Size (%)				
2007				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,84%	2,53%	2,14%	0,66%
1 to 4 Years	20,58%	11,39%	7,36%	6,92%
5 to 9 Years	22,47%	17,73%	10,82%	10,64%
10 to 19 Years	26,44%	30,46%	24,92%	30,50%
20 to 49 Years	21,11%	33,18%	42,54%	36,80%
> 50 Years	1,56%	4,71%	12,22%	14,47%
TOTAL	100,00%	100,00%	100,00%	100,00%

Table 90

Global Gain of Workers by Company Age and Size (%)				
2006				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	7,18%	2,30%	1,94%	0,60%
1 to 4 Years	20,73%	11,42%	7,37%	6,93%
5 to 9 Years	22,63%	17,77%	10,85%	10,65%
10 to 19 Years	26,63%	30,53%	24,97%	30,52%
20 to 49 Years	21,26%	33,26%	42,62%	36,82%
> 50 Years	1,58%	4,72%	12,25%	14,48%
TOTAL	100,00%	100,00%	100,00%	100,00%

Table 91

Global Gain of Workers by Company Age and Size (%)				
2005				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	6,22%	1,98%	1,67%	0,52%
1 to 4 Years	20,94%	11,45%	7,39%	6,93%
5 to 9 Years	22,86%	17,83%	10,88%	10,66%
10 to 19 Years	26,91%	30,63%	25,04%	30,55%
20 to 49 Years	21,48%	33,37%	42,74%	36,86%
> 50 Years	1,59%	4,73%	12,28%	14,49%
TOTAL	100,00%	100,00%	100,00%	100,00%

Table 92

Global Gain of Workers by Company Age and Size (%)				
2004				
	< 10	10 to 49	50 to 249	> 250
< 1 Year	6,61%	2,11%	1,78%	0,55%
1 to 4 Years	20,86%	11,44%	7,38%	6,93%
5 to 9 Years	22,77%	17,81%	10,86%	10,65%
10 to 19 Years	26,79%	30,59%	25,01%	30,53%
20 to 49 Years	21,39%	33,32%	42,69%	36,84%
> 50 Years	1,58%	4,73%	12,27%	14,49%
TOTAL	100,00%	100,00%	100,00%	100,00%

With the percentages calculated and already knowing the total received each year by company size (table 59), by matching each percentage to its respective value we'll have the contribution by company age and size.

For 2010, for example, the percentage of SC paid by the companies with less than 10 employees and less than one year was 7,38% (table 86) while the total paid by the companies with less than 10 employees in 2010 was 2.300.909.704,00€ (table 59), which gives 169.946.949,21€, like is shown in table 93. For the rest of the segments and the remaining years, the same logic is applied. The final results are displayed on the tables 93 to 99.

Table 93

SC by Company Age and Size (in units €)					
2010					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	169.946.949,21 €	61.351.456,07 €	51.027.645,74 €	24.479.105,79 €	306.805.156,81 €
1 to 4 Years	476.460.278,35 €	295.258.353,45 €	187.753.277,70 €	273.288.863,50 €	1.232.760.772,99 €
5 to 9 Years	520.130.067,33 €	459.583.340,96 €	276.261.252,52 €	419.945.535,92 €	1.675.920.196,73 €
10 to 19 Years	612.137.584,01 €	789.667.277,77 €	635.959.952,76 €	1.203.728.913,85 €	3.241.493.728,40 €
20 to 49 Years	488.603.767,88 €	860.126.854,96 €	1.085.677.137,42 €	1.452.415.286,64 €	3.886.823.046,90 €
> 50 Years	36.205.890,71 €	121.963.197,29 €	311.935.496,37 €	571.073.502,80 €	1.041.178.087,17 €
TOTAL	2.303.484.537,50 €	2.587.950.480,50 €	2.548.614.762,50 €	3.944.931.208,50 €	11.384.980.989,00 €

Table 94

SC by Company Age and Size (in units €)					
2009					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	151.244.799,95 €	53.941.682,06 €	45.083.014,10 €	22.445.320,53 €	272.714.816,63 €
1 to 4 Years	473.001.910,48 €	289.581.570,89 €	185.039.333,38 €	279.525.422,56 €	1.227.148.237,31 €
5 to 9 Years	516.354.724,05 €	450.747.165,25 €	272.267.939,24 €	429.528.857,77 €	1.668.898.686,30 €
10 to 19 Years	607.694.407,84 €	774.484.745,69 €	626.767.250,93 €	1.231.198.479,82 €	3.240.144.884,28 €
20 to 49 Years	485.057.256,98 €	843.589.632,33 €	1.069.983.843,89 €	1.485.559.973,19 €	3.884.190.706,39 €
> 50 Years	35.943.091,70 €	119.618.272,78 €	307.426.517,46 €	584.105.624,13 €	1.047.093.506,08 €
TOTAL	2.269.296.191,00 €	2.531.963.069,00 €	2.506.567.899,00 €	4.032.363.678,00 €	11.340.190.837,00 €

Table 95

SC by Company Age and Size (in units €)					
2008					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	186.935.512,19 €	68.245.481,93 €	56.495.177,75 €	26.104.035,29 €	337.780.207,17 €
1 to 4 Years	480.301.323,24 €	300.995.406,33 €	190.503.087,44 €	267.080.805,16 €	1.238.880.622,16 €
5 to 9 Years	524.323.161,75 €	468.513.330,23 €	280.307.338,38 €	410.406.009,31 €	1.683.549.839,68 €
10 to 19 Years	617.072.408,68 €	805.011.002,61 €	645.274.138,35 €	1.176.384.882,25 €	3.243.742.431,89 €
20 to 49 Years	492.542.709,05 €	876.839.653,06 €	1.101.577.821,57 €	1.419.422.069,46 €	3.890.382.253,14 €
> 50 Years	36.497.769,09 €	124.333.017,84 €	316.504.062,50 €	558.100.937,53 €	1.035.435.786,96 €
TOTAL	2.337.672.884,00 €	2.643.937.892,00 €	2.590.661.626,00 €	3.857.498.739,00 €	11.429.771.141,00 €

Table 96

SC by Company Age and Size (in units €)					
2007					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	178.361.916,29 €	64.992.383,07 €	53.596.189,72 €	23.885.097,34 €	320.835.586,42 €
1 to 4 Years	468.305.757,66 €	292.923.234,38 €	184.684.288,97 €	249.728.116,18 €	1.195.641.397,19 €
5 to 9 Years	511.228.147,09 €	455.948.619,68 €	271.745.524,86 €	383.741.240,82 €	1.622.663.532,45 €
10 to 19 Years	601.660.973,85 €	783.422.011,24 €	625.564.640,63 €	1.099.953.178,47 €	3.110.600.804,18 €
20 to 49 Years	480.241.413,84 €	853.324.342,54 €	1.067.930.811,30 €	1.327.199.830,97 €	3.728.696.398,65 €
> 50 Years	35.586.234,26 €	120.998.623,10 €	306.836.642,52 €	521.840.181,22 €	985.261.681,11 €
TOTAL	2.275.384.443,00 €	2.571.609.214,00 €	2.510.358.098,00 €	3.606.347.645,00 €	10.963.699.400,00 €

Table 97

SC by Company Age and Size (in units €)					
2006					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	155.433.752,24 €	56.774.718,17 €	45.425.264,98 €	21.932.334,31 €	279.566.069,70 €
1 to 4 Years	448.953.990,31 €	281.498.110,16 €	172.195.834,89 €	252.263.501,65 €	1.154.911.437,01 €
5 to 9 Years	490.102.700,73 €	438.164.883,16 €	253.369.941,70 €	387.637.205,69 €	1.569.274.731,28 €
10 to 19 Years	576.798.577,86 €	752.865.562,49 €	583.263.612,57 €	1.111.120.544,61 €	3.024.048.297,53 €
20 to 49 Years	460.396.430,17 €	820.041.436,06 €	995.716.737,35 €	1.340.674.337,66 €	3.616.828.941,24 €
> 50 Years	34.115.706,70 €	116.279.214,95 €	286.088.178,52 €	527.138.207,07 €	963.621.307,24 €
TOTAL	2.165.801.158,00 €	2.465.623.925,00 €	2.336.059.570,00 €	3.640.766.131,00 €	10.608.250.784,00 €

Table 98

SC by Company Age and Size (in units €)					
2005					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	150.509.659,60 €	49.287.849,29 €	38.322.933,31 €	17.592.910,14 €	255.713.352,35 €
1 to 4 Years	506.936.832,55 €	284.966.188,10 €	169.401.357,07 €	235.960.993,37 €	1.197.265.371,10 €
5 to 9 Years	553.399.938,74 €	443.563.107,57 €	249.258.130,97 €	362.586.182,80 €	1.608.807.360,07 €
10 to 19 Years	651.292.672,29 €	762.140.923,00 €	573.798.126,79 €	1.039.314.469,77 €	3.026.546.191,85 €
20 to 49 Years	519.857.074,60 €	830.144.408,39 €	979.557.761,53 €	1.254.033.367,61 €	3.583.592.612,13 €
> 50 Years	38.521.783,23 €	117.711.783,65 €	281.445.400,32 €	493.071.943,30 €	930.750.910,50 €
TOTAL	2.420.517.961,00 €	2.487.814.260,00 €	2.291.783.710,00 €	3.402.559.867,00 €	10.602.675.798,00 €

Table 99

SC by Company Age and Size (in units €)					
2004					
	< 10	10 to 49	50 to 249	> 250	TOTAL
< 1 Year	152.139.709,92 €	49.671.428,75 €	40.397.693,60 €	18.481.712,28 €	260.690.544,55 €
1 to 4 Years	479.861.969,67 €	268.933.183,26 €	167.224.146,38 €	232.128.792,02 €	1.148.148.091,33 €
5 to 9 Years	523.843.539,41 €	418.606.990,84 €	246.054.570,64 €	356.697.483,82 €	1.545.202.584,71 €
10 to 19 Years	616.507.944,36 €	719.260.716,07 €	566.423.454,95 €	1.022.435.144,69 €	2.924.627.260,07 €
20 to 49 Years	492.092.157,73 €	783.438.132,77 €	966.968.112,48 €	1.233.666.830,34 €	3.476.165.233,33 €
> 50 Years	36.464.382,91 €	111.088.985,31 €	277.828.156,95 €	485.064.047,84 €	910.445.573,02 €
TOTAL	2.300.909.704,00 €	2.350.999.437,00 €	2.264.896.135,00 €	3.348.474.011,00 €	10.265.279.287,00 €

Following the same methodology as used in the calculation of the CIT, now is the estimation of the three different scenarios plus another one without deferral. These scenarios will be once again one realistic, another optimistic and the last one a pessimistic.

The same conditions assumed for the CIT models that are displayed on the table 50 are maintained for this model, without the need to explain them again.

Table 100 shows the situation without deferral. It is observable that the number of companies failed from year to year is the same as in the previous CIT situation without a model as a result of using the same assumptions for this model that otherwise wouldn't allow for cross matching and comparison. The final SC contribution is 5.456.945.605,85€.

Remember that the following tables are not the final models but the basis of them, that still require extra calculations to see in what way the deferral did impacted the state.

Table 100

No Model (in units €)	2004			2005			2006			2007		
	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC
2004	260.690.544,55 €	21.292	12.243,39 €	205.257.958,88 €	16.765	12.243,39 €	149.825.373,22 €	9.635	15.549,88 €	155.109.225,55 €	9.382	16.533,48 €
2005	- €	-	- €	255.713.352,35 €	21.940	11.655,38 €	199.769.663,69 €	17.140	11.655,38 €	143.825.975,03 €	12.340	11.655,38 €
2006	- €	-	- €	- €	-	- €	279.566.069,70 €	25.514	10.957,30 €	221.835.676,31 €	20.245	10.957,30 €
2007	- €	-	- €	- €	-	- €	- €	-	- €	320.835.586,42 €	28.724	11.169,45 €
2008	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
2009	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
Total	260.690.544,55 €	21.292	12.243,39 €	460.971.311,23 €	38.704	11.949,38 €	629.161.106,61 €	52.289	12.720,85 €	841.606.463,30 €	70.691	12.578,90 €
Cumulative SC	260.690.544,55 €			721.661.855,78 €			1.350.822.962,39 €			2.192.429.425,69 €		
	2008			2009			2010					
	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC
2004	160.718.602,00 €	9.055	17.748,91 €	159.319.942,55 €	7.968	19.994,26 €	159.990.244,86 €	7.300	21.916,32 €			
2005	149.027.303,54 €	11.911	12.512,20 €	147.615.992,68 €	10.481	14.084,15 €	148.237.053,29 €	9.602	15.438,07 €			
2006	164.105.282,92 €	14.977	10.957,30 €	162.551.181,33 €	13.179	12.333,91 €	163.294.632,11 €	12.074	13.524,51 €			
2007	246.706.524,18 €	22.088	11.169,45 €	172.577.461,94 €	15.451	11.169,45 €	173.366.769,32 €	14.155	12.247,64 €			
2008	337.780.207,17 €	29.491	11.453,65 €	260.208.982,59 €	22.718	11.453,65 €	182.637.758,01 €	15.946	11.453,65 €			
2009	- €	-	- €	272.714.816,63 €	25.875	10.539,70 €	203.663.425,06 €	19.323	10.539,70 €			
Total	1.058.337.919,80 €	87.521	12.768,30 €	1.174.988.377,72 €	95.673	13.262,52 €	1.031.189.882,64 €	78.400	14.186,65 €			
Cumulative SC	3.250.767.345,49 €			4.425.755.723,21 €			5.456.945.605,85 €					
Total SC	5.456.945.605,85 €											

The realistic model, already with deferral is shown on table 101 and although the total contribution is valued in 7.786.885.818,23€, this still does not account for the impact of the deferral, like it was mentioned before.

Nevertheless, once again these calculations were made under the same assumption as the realistic model of the CIT contribution.

Table 101

Realistic Model (in units €)	2004			2005			2006			2007		
	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC
2004	260.690.544,55 €	21.292	12.243,39 €	271.842.773,53 €	20.346	13.360,70 €	262.226.182,93 €	19.388	13.525,28 €	271.474.045,27 €	18.878	14.380,81 €
2005	- €	-	- €	255.713.352,35 €	21.940	11.655,38 €	246.667.349,07 €	20.906	11.798,95 €	255.366.502,08 €	20.356	12.545,29 €
2006	- €	-	- €	- €	-	- €	279.566.069,70 €	25.514	10.957,30 €	289.425.453,31 €	24.843	11.650,40 €
2007	- €	-	- €	- €	-	- €	- €	-	- €	320.835.586,42 €	28.724	11.169,45 €
2008	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
2009	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
Total	260.690.544,55 €	21.292	12.243,39 €	527.556.125,87 €	42.286	12.508,04 €	788.459.601,69 €	65.808	12.093,84 €	1.137.101.587,08 €	92.800	12.436,49 €
Cumulative SC	260.690.544,55 €			788.246.670,42 €			1.576.706.272,12 €			2.713.807.859,19 €		
	2008			2009			2010					
	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC
2004	281.291.643,88 €	18.221	15.437,99 €	278.843.693,17 €	16.034	17.390,99 €	280.016.864,39 €	14.689	19.062,80 €			
2005	264.601.586,83 €	19.647	13.467,53 €	262.095.770,21 €	17.289	15.159,50 €	263.198.478,36 €	15.839	16.616,80 €			
2006	299.892.247,38 €	23.978	12.506,86 €	297.052.222,93 €	21.100	14.078,14 €	298.410.833,20 €	19.331	15.437,12 €			
2007	332.438.297,85 €	27.725	11.990,55 €	329.290.057,43 €	25.277	13.027,38 €	330.796.111,98 €	23.157	14.284,93 €			
2008	337.780.207,17 €	29.491	11.453,65 €	334.581.378,07 €	25.951	12.892,61 €	336.111.633,23 €	23.775	14.137,14 €			
2009	- €	-	- €	272.714.816,63 €	25.875	10.539,70 €	273.962.116,34 €	23.705	11.557,11 €			
Total	1.516.003.983,10 €	119.062	12.971,32 €	1.774.577.938,44 €	131.526	13.848,06 €	1.782.496.037,50 €	120.496	15.182,65 €			
Cumulative SC	4.229.811.842,29 €			6.004.389.780,73 €			7.786.885.818,23 €					
Total SC	7.786.885.818,23 €											

Again, under the same conditions as before we reach the optimistic model (table 102) and the pessimistic model (table 103).

Table 102

Optimistic Model (in units €)	2004			2005			2006			2007		
	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC
2004	260.690.544,55 €	21.292	12.243,39 €	312.828.653,46 €	21.292	14.692,07 €	375.394.384,15 €	21.292	17.630,49 €	450.473.260,99 €	21.292	21.156,58 €
2005	- €	-	- €	255.713.352,35 €	21.940	11.655,38 €	306.856.022,81 €	21.940	13.986,45 €	368.227.227,38 €	21.940	16.783,74 €
2006	- €	-	- €	- €	-	- €	279.566.069,70 €	25.514	10.957,30 €	335.479.283,64 €	25.514	13.148,76 €
2007	- €	-	- €	- €	-	- €	- €	-	- €	320.835.586,42 €	28.724	11.169,45 €
2008	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
2009	- €	-	- €	- €	-	- €	- €	-	- €	- €	-	- €
Total	260.690.544,55 €	21.292	12.243,39 €	568.542.005,81 €	43.232	13.173,72 €	961.816.476,67 €	68.746	14.191,41 €	1.475.015.358,43 €	97.470	15.564,63 €
Cumulative SC	260.690.544,55 €			829.232.550,36 €			1.791.049.027,03 €			3.266.064.385,46 €		
	2008			2009			2010					
	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC	SC Contribution	Companies	Average SC
2004	540.567.913,18 €	21.292	25.387,90 €	648.681.495,82 €	21.292	30.465,48 €	778.417.794,98 €	21.292	36.558,58 €			
2005	441.872.672,85 €	21.940	20.140,49 €	530.247.207,42 €	21.940	24.168,59 €	636.296.648,91 €	21.940	29.002,30 €			
2006	402.575.140,37 €	25.514	15.778,52 €	483.090.168,45 €	25.514	18.934,22 €	579.708.202,14 €	25.514	22.721,06 €			
2007	385.002.703,70 €	28.724	13.403,34 €	462.003.244,45 €	28.724	16.084,00 €	554.403.893,33 €	28.724	19.300,81 €			
2008	337.780.207,17 €	29.491	11.453,65 €	405.336.248,60 €	29.491	13.744,38 €	486.403.498,32 €	29.491	16.493,25 €			
2009	- €	-	- €	272.714.816,63 €	25.875	10.539,70 €	327.257.779,96 €	25.875	12.647,64 €			
Total	2.107.798.637,28 €	126.961	17.232,78 €	2.802.073.181,36 €	152.836	18.989,39 €	3.362.487.817,64 €	152.836	22.787,27 €			
Cumulative SC	5.373.863.022,73 €			8.175.936.204,10 €			11.538.424.021,74 €					
Total SC	11.538.424.021,74 €											

calculated on table 101 (with now being 7.198.350.077,41€). Once again the calculation logic was the same as for the CIT model.

Table 105

Realistic Model (in units €)	2004	2005	2006	2007	2008	2009	2010	Total	
2004	SC to be Received	260.690.544,55 €	532.533.318,08 €	467.360.681,94 €	402.188.045,80 €	337.015.409,66 €	271.842.773,53 €	203.882.080,14 €	203.882.080,14 €
	SC Deferred	- €	- €	65.172.636,14 €	65.172.636,14 €	65.172.636,14 €	65.172.636,14 €	67.960.693,38 €	328.651.237,93 €
	SC Year	- €	- €	262.226.182,93 €	271.474.045,27 €	281.291.643,88 €	278.843.693,17 €	280.016.864,39 €	1.373.852.429,63 €
	SC Lost	11.580.951,07 €	12.807.411,42 €	6.902.544,68 €	9.445.027,87 €	33.761.905,49 €	23.384.347,16 €	28.573.126,33 €	126.455.314,02 €
2005	SC to be Received	- €	255.713.352,35 €	502.380.701,41 €	438.452.363,33 €	374.524.025,24 €	310.595.687,15 €	246.667.349,07 €	246.667.349,07 €
	SC Deferred	- €	- €	- €	63.928.338,09 €	63.928.338,09 €	63.928.338,09 €	63.928.338,09 €	255.713.352,35 €
	SC Year	- €	- €	- €	255.366.502,08 €	264.601.586,83 €	262.095.770,21 €	263.198.478,36 €	1.045.262.337,48 €
	SC Lost	- €	12.047.501,08 €	6.492.991,58 €	8.884.619,99 €	31.758.688,75 €	21.979.835,41 €	26.869.262,08 €	108.032.898,90 €
2006	SC to be Received	- €	- €	279.566.069,70 €	568.991.523,01 €	499.100.005,59 €	429.208.488,16 €	359.316.970,73 €	359.316.970,73 €
	SC Deferred	- €	- €	- €	- €	69.891.517,43 €	69.891.517,43 €	69.891.517,43 €	209.674.552,28 €
	SC Year	- €	- €	- €	- €	299.892.247,38 €	297.052.222,93 €	298.410.833,20 €	895.355.303,51 €
	SC Lost	- €	- €	7.358.980,20 €	10.069.586,84 €	35.994.434,72 €	24.911.348,10 €	30.452.891,41 €	108.787.241,27 €
2007	SC to be Received	- €	- €	- €	320.835.586,42 €	653.273.884,27 €	573.064.987,66 €	492.856.091,06 €	492.856.091,06 €
	SC Deferred	- €	- €	- €	- €	- €	80.208.896,61 €	80.208.896,61 €	160.417.793,21 €
	SC Year	- €	- €	- €	- €	- €	329.290.057,43 €	330.796.111,98 €	660.086.169,41 €
	SC Lost	- €	- €	- €	11.162.396,95 €	29.356.030,24 €	27.614.872,45 €	28.485.451,34 €	96.618.750,98 €
2008	SC to be Received	- €	- €	- €	- €	337.780.207,17 €	672.361.585,23 €	587.916.533,44 €	587.916.533,44 €
	SC Deferred	- €	- €	- €	- €	- €	- €	84.445.051,79 €	84.445.051,79 €
	SC Year	- €	- €	- €	- €	- €	- €	336.111.633,23 €	336.111.633,23 €
	SC Lost	- €	- €	- €	- €	40.541.920,38 €	28.058.612,37 €	34.300.266,38 €	102.900.799,13 €
2009	SC to be Received	- €	- €	- €	- €	- €	272.714.816,63 €	546.676.932,97 €	546.676.932,97 €
	SC Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	SC Year	- €	- €	- €	- €	- €	- €	- €	- €
	SC Lost	- €	- €	- €	- €	- €	22.870.368,26 €	22.870.368,26 €	45.740.736,51 €
Total SC to be Received (A)	260.690.544,55 €	788.246.670,42 €	1.249.307.453,05 €	1.730.467.518,56 €	2.201.693.531,92 €	2.529.788.338,36 €	2.437.315.957,41 €	2.437.315.957,41 €	
Total SC Deferred (B)	- €	- €	65.172.636,14 €	129.100.974,22 €	198.992.491,65 €	279.201.388,25 €	366.434.497,29 €	1.038.901.987,56 €	
Total SC Year (C)	- €	- €	262.226.182,93 €	526.840.547,35 €	845.785.478,09 €	1.167.281.743,74 €	1.508.533.921,16 €	4.310.667.873,26 €	
Total SC Lost (D)	11.580.951,07 €	24.854.912,50 €	20.754.516,46 €	39.561.631,65 €	171.412.979,59 €	148.819.383,75 €	171.551.365,80 €	588.535.740,82 €	
Total Received (B+C)	- €	- €	327.398.819,06 €	655.941.521,57 €	1.044.777.969,74 €	1.446.483.131,99 €	1.874.968.418,45 €	5.349.569.860,82 €	
Total (A+B+C-D)	249.109.593,49 €	763.391.757,92 €	1.555.951.755,65 €	2.346.847.408,48 €	3.075.058.522,07 €	3.827.452.086,61 €	4.140.733.010,07 €	7.198.350.077,41 €	

On the optimistic model (table 106), there is no failure and the only note to be referred is the difference between the value already received and the one to be received (that accounts for the SC deferred).

Table 106

Optimistic Model (in units €)		2004	2005	2006	2007	2008	2009	2010	Total
2004	SC to be Received	260.690.544,55 €	573.519.198,01 €	508.346.561,88 €	443.173.925,74 €	378.001.289,60 €	312.828.653,46 €	234.621.490,10 €	234.621.490,10 €
	SC Deferred	- €	- €	65.172.636,14 €	65.172.636,14 €	65.172.636,14 €	65.172.636,14 €	78.207.163,37 €	338.897.707,92 €
	SC Year	- €	- €	375.394.384,15 €	450.473.260,99 €	540.567.913,18 €	648.681.495,82 €	778.417.794,98 €	2.793.534.849,12 €
	SC Lost	- €	- €	- €	- €	- €	- €	- €	- €
2005	SC to be Received	- €	255.713.352,35 €	562.569.375,16 €	498.641.037,07 €	434.712.698,99 €	370.784.360,90 €	306.856.022,81 €	306.856.022,81 €
	SC Deferred	- €	- €	- €	63.928.338,09 €	63.928.338,09 €	63.928.338,09 €	63.928.338,09 €	255.713.352,35 €
	SC Year	- €	- €	- €	368.227.227,38 €	441.872.672,85 €	530.247.207,42 €	636.296.648,91 €	1.976.643.756,56 €
	SC Lost	- €	- €	- €	- €	- €	- €	- €	- €
2006	SC to be Received	- €	- €	279.566.069,70 €	615.045.353,35 €	545.153.835,92 €	475.262.318,49 €	405.370.801,07 €	405.370.801,07 €
	SC Deferred	- €	- €	- €	- €	69.891.517,43 €	69.891.517,43 €	69.891.517,43 €	209.674.552,28 €
	SC Year	- €	- €	- €	- €	402.575.140,37 €	483.090.168,45 €	579.708.202,14 €	1.465.373.510,95 €
	SC Lost	- €	- €	- €	- €	- €	- €	- €	- €
2007	SC to be Received	- €	- €	- €	320.835.586,42 €	705.838.290,12 €	625.629.393,52 €	545.420.496,91 €	545.420.496,91 €
	SC Deferred	- €	- €	- €	- €	- €	80.208.896,61 €	80.208.896,61 €	160.417.793,21 €
	SC Year	- €	- €	- €	- €	- €	462.003.244,45 €	554.403.893,33 €	1.016.407.137,78 €
	SC Lost	- €	- €	- €	- €	- €	- €	- €	- €
2008	SC to be Received	- €	- €	- €	- €	337.780.207,17 €	743.116.455,77 €	658.671.403,97 €	658.671.403,97 €
	SC Deferred	- €	- €	- €	- €	- €	- €	84.445.051,79 €	84.445.051,79 €
	SC Year	- €	- €	- €	- €	- €	- €	486.403.498,32 €	486.403.498,32 €
	SC Lost	- €	- €	- €	- €	- €	- €	- €	- €
2009	SC to be Received	- €	- €	- €	- €	- €	272.714.816,63 €	599.972.596,59 €	599.972.596,59 €
	SC Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	SC Year	- €	- €	- €	- €	- €	- €	- €	- €
	SC Lost	- €	- €	- €	- €	- €	- €	- €	- €
Total SC to be Received (A)		260.690.544,55 €	829.232.550,36 €	1.350.482.006,74 €	1.877.695.902,58 €	2.401.486.321,80 €	2.800.335.998,77 €	2.750.912.811,46 €	2.750.912.811,46 €
Total SC Deferred (B)		- €	- €	65.172.636,14 €	129.100.974,22 €	198.992.491,65 €	279.201.388,25 €	376.680.967,27 €	1.049.148.457,54 €
Total SC Year (C)		- €	- €	375.394.384,15 €	818.700.488,36 €	1.385.015.726,41 €	2.124.022.116,13 €	3.035.230.037,68 €	7.738.362.752,74 €
Total SC Lost (D)		- €	- €	- €	- €	- €	- €	- €	- €
Total Received (B+C)		- €	- €	440.567.020,29 €	947.801.462,59 €	1.584.008.218,06 €	2.403.223.504,39 €	3.411.911.004,95 €	8.787.511.210,28 €
Total (A+B+C-D)		260.690.544,55 €	829.232.550,36 €	1.791.049.027,03 €	2.825.497.365,16 €	3.985.494.539,85 €	5.203.559.503,16 €	6.162.823.816,41 €	11.538.424.021,74 €

Finally, the pessimistic model (table 107) simulates the worst situation possible. A situation that although is the worst for the state, for the companies, will not be worse than the no model case that is why the failure rate will be equal to the one in that model. In here the state will be harmed by the SC lost in result of the failure of the companies.

Table 107

Pessimistic Model (in units €)		2004	2005	2006	2007	2008	2009	2010	Total
2004	SC to be Received	260.690.544,55 €	465.948.503,44 €	400.775.867,30 €	335.603.231,16 €	270.430.595,02 €	205.257.958,88 €	153.943.469,16 €	153.943.469,16 €
	SC Deferred	- €	- €	65.172.636,14 €	65.172.636,14 €	65.172.636,14 €	65.172.636,14 €	51.314.489,72 €	312.005.034,27 €
	SC Year	- €	- €	149.825.373,22 €	155.109.225,55 €	160.718.602,00 €	159.319.942,55 €	159.990.244,86 €	784.963.388,17 €
	SC Lost	55.432.585,67 €	87.291.078,46 €	3.943.833,23 €	5.396.504,69 €	19.290.179,32 €	13.360.864,66 €	16.325.521,99 €	201.040.568,02 €
2005	SC to be Received	- €	255.713.352,35 €	455.483.016,03 €	391.554.677,94 €	327.626.339,86 €	263.698.001,77 €	199.769.663,69 €	199.769.663,69 €
	SC Deferred	- €	- €	- €	63.928.338,09 €	63.928.338,09 €	63.928.338,09 €	63.928.338,09 €	255.713.352,35 €
	SC Year	- €	- €	- €	143.825.975,03 €	149.027.303,54 €	147.615.992,68 €	148.237.053,29 €	588.706.324,53 €
	SC Lost	- €	55.943.688,66 €	55.943.688,66 €	5.003.941,87 €	17.886.936,38 €	12.379.349,81 €	15.133.143,09 €	162.290.748,47 €
2006	SC to be Received	- €	- €	279.566.069,70 €	501.401.746,01 €	431.510.228,59 €	361.618.711,16 €	291.727.193,73 €	291.727.193,73 €
	SC Deferred	- €	- €	- €	- €	69.891.517,43 €	69.891.517,43 €	69.891.517,43 €	209.674.552,28 €
	SC Year	- €	- €	- €	- €	164.105.282,92 €	162.551.181,33 €	163.294.632,11 €	489.951.096,35 €
	SC Lost	- €	- €	57.730.393,39 €	57.730.393,39 €	19.696.664,20 €	13.631.842,32 €	16.664.253,26 €	165.453.546,56 €
2007	SC to be Received	- €	- €	- €	320.835.586,42 €	567.542.110,60 €	487.333.213,99 €	407.124.317,39 €	407.124.317,39 €
	SC Deferred	- €	- €	- €	- €	- €	80.208.896,61 €	80.208.896,61 €	160.417.793,21 €
	SC Year	- €	- €	- €	- €	- €	172.577.461,94 €	173.366.769,32 €	345.944.231,25 €
	SC Lost	- €	- €	- €	74.129.062,24 €	74.129.062,24 €	14.472.664,73 €	44.300.863,48 €	207.031.652,70 €
2008	SC to be Received	- €	- €	- €	- €	337.780.207,17 €	597.989.189,76 €	513.544.137,97 €	513.544.137,97 €
	SC Deferred	- €	- €	- €	- €	- €	- €	84.445.051,79 €	84.445.051,79 €
	SC Year	- €	- €	- €	- €	- €	- €	182.637.758,01 €	182.637.758,01 €
	SC Lost	- €	- €	- €	- €	77.571.224,58 €	77.571.224,58 €	77.571.224,58 €	232.713.673,73 €
2009	SC to be Received	- €	- €	- €	- €	- €	272.714.816,63 €	476.378.241,69 €	476.378.241,69 €
	SC Deferred	- €	- €	- €	- €	- €	- €	- €	- €
	SC Year	- €	- €	- €	- €	- €	- €	- €	- €
	SC Lost	- €	- €	- €	- €	- €	69.051.391,57 €	69.051.391,57 €	138.102.783,14 €
Total SC to be Received (A)		260.690.544,55 €	721.661.855,78 €	1.135.824.953,03 €	1.549.395.241,54 €	1.934.889.481,23 €	2.188.611.892,20 €	2.042.487.023,63 €	2.042.487.023,63 €
Total SC Deferred (B)		- €	- €	65.172.636,14 €	129.100.974,22 €	198.992.491,65 €	279.201.388,25 €	349.788.293,63 €	1.022.255.783,90 €
Total SC Year (C)		- €	- €	149.825.373,22 €	298.935.200,57 €	473.851.188,45 €	642.064.578,50 €	827.526.457,58 €	2.392.202.798,32 €
Total SC Lost (D)		55.432.585,67 €	143.234.767,12 €	117.617.915,28 €	142.259.902,20 €	208.574.066,72 €	200.467.337,66 €	239.046.397,97 €	1.106.632.972,62 €
Total Received (B+C)		- €	- €	214.998.009,36 €	428.036.174,80 €	672.843.680,10 €	921.265.966,75 €	1.177.314.751,21 €	3.414.458.582,22 €
Total (A+B+C-D)		205.257.958,88 €	578.427.088,66 €	1.233.205.047,11 €	1.835.171.514,13 €	2.399.159.094,62 €	2.909.410.521,29 €	2.980.755.376,87 €	4.350.312.633,23 €

Part 4 - Model for the Impact caused by the Unemployment

This fourth appendix is meant to address an external impact of the failure of companies, based on the unemployment resultant. There are two impacts to be addressed, the direct cost impacts the Social Security through the increase of the unemployment subsidy and the other impact can be seen in the loss of buying power by the workers that see their monthly gain reduced, which will also affect the rest of the economy because this way they have less money to spent.

The first step of this study was to find the average number of employees per company per year. For that it is necessary to know the number of companies and workers.

Table 108 shows the number of workers by year and by company age. Although the company age is not implicit referred on the table, the categories used were the same as on the previously analyses, being grouped in companies with less than one year, from 1 to 4 years and from 5 to 9 years – the only ones that matter for this case.

The goal is to find the average number of employees per company age starting with the companies created each year that is why the total workers is needed. From tables 72 to 78 all of the values displayed on table 108 can be retrieved. And because the companies will grow older there are years in which they will be contemplated on the same segment. For example, in the year of 2006 the companies created in 2004 and 2005 have already two and one year respectively that is why they share the same number of total employees (they fit in the same category of 1 to 4 years).

Table 108

Total Workers by Year and Company Age (in units)							
Year	2004	2005	2006	2007	2008	2009	2010
2004	94.505	402.130	401.629	412.815	416.473	538.024	-
2005	-	96.095	401.629	412.815	416.473	429.977	-
2006	-	-	111.660	412.815	416.473	429.977	-
2007	-	-	-	125.887	416.473	429.977	-
2008	-	-	-	-	129.294	429.977	-
2009	-	-	-	-	-	110.673	-
2010	-	-	-	-	-	-	-

The same logic is applied for the total number of companies, with the data being retrieved from the tables 17, 22, 26, 30, 34, 38 and 42 for each of the years.

In both tables (108 and 109) the year of 2010 does not show any values because they will not be relevant for the next calculations.

Table 109

Total Companies by Year and Company Age (in units)							
Year	2004	2005	2006	2007	2008	2009	2010
2004	21.292	71.514	71.315	73.014	73.328	82.893	-
2005	-	21.940	71.315	73.014	73.328	82.893	-
2006	-	-	25.514	73.014	73.328	82.893	-
2007	-	-	-	28.724	73.328	82.893	-
2008	-	-	-	-	29.491	82.893	-
2009	-	-	-	-	-	25.875	-
2010	-	-	-	-	-	-	-

Table 110 is the result of dividing the values from the table 108 with the ones of the table 109. This way, the average number of workers per company is achieved. As expected the numbers will be shared in the cases in which the companies are in the same segment.

Although the values show two decimal cases, this wouldn't make sense therefore when to be used, these values will be rounded to the unit.

Table 110

Average Number of Workers per Company / Year (in units)							
Year	2004	2005	2006	2007	2008	2009	2010
2004	4,44	5,62	5,63	5,65	5,68	6,49	-
2005	-	4,38	5,63	5,65	5,68	5,50	-
2006	-	-	4,38	5,65	5,68	5,50	-
2007	-	-	-	4,38	5,68	5,50	-
2008	-	-	-	-	4,38	5,50	-
2009	-	-	-	-	-	4,28	-
2010	-	-	-	-	-	-	-

Tables 111 to 114 show the number of companies failed in each year, per model. These failed companies are referent only to those created in the preceding years (the startups).

These values can be calculated by subtracting the companies that are existent in each year from the tables 51 to 54.

Table 111

Failed Companies (in units)							
No Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	4.528	7.130	254	326	1.087	668
2005	-	-	4.800	4.800	429	1.430	879
2006	-	-	-	5.269	5.269	1.798	1.105
2007	-	-	-	-	6.637	6.637	1.296
2008	-	-	-	-	-	6.773	6.773
2009	-	-	-	-	-	-	6.552
2010	-	-	-	-	-	-	-

Table 112

Failed Companies (in units)							
Realistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	946	959	510	657	2.187	1.345
2005	-	-	1.034	550	708	2.358	1.450
2006	-	-	-	672	864	2.878	1.770
2007	-	-	-	-	999	2.448	2.120
2008	-	-	-	-	-	3.540	2.176
2009	-	-	-	-	-	-	2.170
2010	-	-	-	-	-	-	-

Table 113

Failed Companies (in units)							
Optimistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-

Table 114

Failed Companies (in units)							
Pessimistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	4.528	7.130	254	326	1.087	668
2005	-	-	4.800	4.800	429	1.430	879
2006	-	-	-	5.269	5.269	1.798	1.105
2007	-	-	-	-	6.637	6.637	1.296
2008	-	-	-	-	-	6.773	6.773
2009	-	-	-	-	-	-	6.552
2010	-	-	-	-	-	-	-

Knowing the number of companies failed and the average number of workers per company it is possible to estimate the number of workers unemployed as a result of the failure of the startups by multiplying each by its correspondent value.

Tables 115 to 118 show the number of workers unemployed for each situation, per year.

Table 115

Unemployment (in units)							
No Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	20.095	40.091	1.428	1.845	6.173	4.337
2005	-	-	21.023	27.031	2.427	8.119	4.836
2006	-	-	-	23.058	29.788	10.209	6.081
2007	-	-	-	-	29.086	37.694	7.129
2008	-	-	-	-	-	29.692	37.261
2009	-	-	-	-	-	-	28.022
2010	-	-	-	-	-	-	-

Table 116

Unemployment (in units)							
Realistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	4.198	5.390	2.874	3.713	12.421	8.727
2005	-	-	4.527	3.099	4.004	13.393	7.977
2006	-	-	-	2.939	4.887	16.346	9.735
2007	-	-	-	-	4.380	13.905	11.662
2008	-	-	-	-	-	15.518	11.973
2009	-	-	-	-	-	-	9.281
2010	-	-	-	-	-	-	-

Table 117

Unemployment (in units)							
Optimistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-

Table 118

Unemployment (in units)							
Pessimistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	-	20.095	40.091	1.428	1.845	6.173	4.337
2005	-	-	21.023	27.031	2.427	8.119	4.836
2006	-	-	-	23.058	29.788	10.209	6.081
2007	-	-	-	-	29.086	37.694	7.129
2008	-	-	-	-	-	29.692	37.261
2009	-	-	-	-	-	-	28.022
2010	-	-	-	-	-	-	-

Instituto Nacional de Estatística (2011) (78) provides the necessary data to continue with the reasoning. It displays information about the annual subsidy paid to each unemployed worker, on average and the number of days, on average, each worker was unemployed that year.

From the annual subsidy, the daily subsidy is reached through its division by 365 (number of days on a common year). Multiplying that value by the average unemployment days, the average subsidy that a worker receives is achieved. Table 119 shows the final values for each year.

Table 119

Average Unemployment Cost per Worker per Year (in units and units €)				
Year	Annual Subsidy	Daily Subsidy	Unemployment Days	Average Subsidy
2010	3.497,00 €	9,58 €	217	2.079,04 €
2009	3.411,00 €	9,35 €	215	2.009,22 €
2008	3.136,00 €	8,59 €	198	1.701,17 €
2007	3.268,00 €	8,95 €	209	1.871,27 €
2006	3.392,00 €	9,29 €	222	2.063,08 €
2005	3.472,00 €	9,51 €	237	2.254,42 €
2004	2.994,00 €	8,20 €	210	1.722,58 €

Source: (INE, 2011) (78)

With the unemployment numbers calculated on the tables 115 to 118 and the average subsidy for each worker per year it is easy to find the total cost of those subsidies per year for each model.

For example, for the year of 2005, we see that the subsidy cost was only spent with the unemployed workers from the previous year. From 2004 we had in the no model situation 20.095 unemployed workers (table 115) that will receive the subsidy during the year of 2005. Therefore that value of 20.095 will multiply by 2.254,42€ with the expected result of 45.303.508,91€.

The same logic was applied for the rest of the model and for the remaining models with the correspondent values.

The optimistic model, as it assumes no failure, will not have unemployment costs. While the pessimistic situation will be exactly equal to the no model one.

Table 120

Unemployment Cost (in units €)							
No Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	- €	45.303.508,91 €	82.710.293,01 €	2.672.817,96 €	3.139.382,79 €	12.402.408,62 €	9.017.273,12 €
2005	- €	- €	43.372.545,67 €	50.582.787,27 €	4.129.353,66 €	16.313.375,86 €	10.053.640,11 €
2006	- €	- €	- €	43.147.415,73 €	50.675.370,45 €	20.513.066,85 €	12.641.834,13 €
2007	- €	- €	- €	- €	49.480.479,65 €	75.735.307,92 €	14.820.847,07 €
2008	- €	- €	- €	- €	- €	59.658.297,82 €	77.466.349,49 €
2009	- €	- €	- €	- €	- €	- €	58.259.567,15 €
2010	- €	- €	- €	- €	- €	- €	- €
Total	- €	45.303.508,91 €	126.082.838,68 €	96.403.020,96 €	107.424.586,56 €	184.622.457,07 €	182.259.511,08 €
Total Cumulative	- €	45.303.508,91 €	171.386.347,59 €	267.789.368,55 €	375.213.955,11 €	559.836.412,18 €	742.095.923,25 €

Table 121

Unemployment Cost (in units €)							
Realistic Model							
Year	2004	2005	2006	2007	2008	2009	2010
2004	- €	9.464.788,87 €	11.120.484,82 €	5.378.250,20 €	6.317.072,99 €	24.956.154,01 €	18.144.576,88 €
2005	- €	- €	9.340.299,21 €	5.799.352,41 €	6.811.682,44 €	26.910.152,29 €	16.584.242,82 €
2006	- €	- €	- €	5.500.066,07 €	8.313.172,20 €	32.841.920,01 €	20.239.884,57 €
2007	- €	- €	- €	- €	7.450.799,17 €	27.938.286,90 €	24.246.107,90 €
2008	- €	- €	- €	- €	- €	31.179.886,27 €	24.893.250,91 €
2009	- €	- €	- €	- €	- €	- €	19.296.030,46 €
2010	- €	- €	- €	- €	- €	- €	- €
Total	- €	9.464.788,87 €	20.460.784,03 €	16.677.668,69 €	28.892.726,80 €	143.826.399,49 €	123.404.093,54 €
Total Cumulative	- €	9.464.788,87 €	29.925.572,90 €	46.603.241,58 €	75.495.968,38 €	219.322.367,87 €	342.726.461,42 €

Table 122

Unemployment Cost (in units €)								
Optimistic Model								
Year	2004	2005	2006	2007	2008	2009	2010	
2004	- €	- €	- €	- €	- €	- €	- €	- €
2005	- €	- €	- €	- €	- €	- €	- €	- €
2006	- €	- €	- €	- €	- €	- €	- €	- €
2007	- €	- €	- €	- €	- €	- €	- €	- €
2008	- €	- €	- €	- €	- €	- €	- €	- €
2009	- €	- €	- €	- €	- €	- €	- €	- €
2010	- €	- €	- €	- €	- €	- €	- €	- €
Total	- €	- €	- €	- €	- €	- €	- €	- €
Total Cumulative	- €	- €	- €	- €	- €	- €	- €	- €

Table 123

Unemployment Cost (in units €)								
Pessimistic Model								
Year	2004	2005	2006	2007	2008	2009	2010	
2004	- €	45.303.508,91 €	82.710.293,01 €	2.672.817,96 €	3.139.382,79 €	12.402.408,62 €	9.017.273,12 €	
2005	- €	- €	43.372.545,67 €	50.582.787,27 €	4.129.353,66 €	16.313.375,86 €	10.053.640,11 €	
2006	- €	- €	- €	43.147.415,73 €	50.675.370,45 €	20.513.066,85 €	12.641.834,13 €	
2007	- €	- €	- €	- €	49.480.479,65 €	75.735.307,92 €	14.820.847,07 €	
2008	- €	- €	- €	- €	- €	59.658.297,82 €	77.466.349,49 €	
2009	- €	- €	- €	- €	- €	- €	58.259.567,15 €	
2010	- €	- €	- €	- €	- €	- €	- €	
Total	- €	45.303.508,91 €	126.082.838,68 €	96.403.020,96 €	107.424.586,56 €	184.622.457,07 €	182.259.511,08 €	
Total Cumulative	- €	45.303.508,91 €	171.386.347,59 €	267.789.368,55 €	375.213.955,11 €	559.836.412,18 €	742.095.923,25 €	

To assess the loss of buying power, table 124 shows the average monthly gain per worker and by company age each year. The values were calculated dividing the total gain of workers of each segment (tables 79-85) by the total number of workers of the correspondent segment (tables 72 to 78). For example for the year of 2004, the value of 756,18€ is the result of the division of the sum of the values displayed on row of the companies with less than one year of the table 85 (71.463.488,53€) with the sum of the values of the correspondent row on the table 78 (94.505).

Applying the same calculations for the rest of the cells, table 124 is achieved. However not all the average gain was calculated, only the values that will actually be used.

Table 124

Average Monthly Gain per Worker / Year by Company Age (in units €)			
Year	< 1 year	1 - 4 years	4 to 9 years
2010	853,07 €	941,79 €	1.010,69 €
2009	829,16 €	919,72 €	988,72 €
2008	876,85 €	963,62 €	- €
2007	835,80 €	919,78 €	- €
2006	807,38 €	891,13 €	- €
2005	780,63 €	864,73 €	- €
2004	756,18 €	- €	- €

The Portuguese remuneration system used, at the years in question, to pay the equivalent of 14 months of salary (the 12 months of the year plus the holiday and the Christmas subsidy), therefore it is important to calculate the average annual gain before the daily one.

Table 125 shows this annual gain, being the result of the multiplication of the values of table 124 by 14.

Table 125

Average Annual Gain per Worker / Year by Company Age (in units €)			
Year	< 1 year	1 - 4 years	4 to 9 years
2010	11.942,99 €	13.185,05 €	14.149,61 €
2009	11.608,21 €	12.876,11 €	13.842,05 €
2008	12.275,94 €	13.490,72 €	- €
2007	11.701,21 €	12.876,93 €	- €
2006	11.303,28 €	12.475,77 €	- €
2005	10.928,83 €	12.106,24 €	- €
2004	10.586,57 €	- €	- €

To achieve the average daily gain, from the annual gain the same method as before is used, by dividing the values of table 125 by 365 (the number of days of a common year), with the final values displayed on table 126.

Table 126

Average Daily Gain per Worker / Year by Company Age (in units €)			
Year	< 1 year	1 - 4 years	4 to 9 years
2010	32,72 €	36,12 €	38,77 €
2009	31,80 €	35,28 €	37,92 €
2008	33,63 €	36,96 €	- €
2007	32,06 €	35,28 €	- €
2006	30,97 €	34,18 €	- €
2005	29,94 €	33,17 €	- €
2004	29,00 €	- €	- €

The average daily loss is achieved by subtracting the average daily subsidy (table 119) to the average daily gain (table 126). This will give how much has the worker really lost in buying power.

Table 127 shows the values for all the years. For example in 2005, the workers used to gain on average 29,94€ a day and the daily subsidy was 9,51€, a loss of 20,43€, as shown on table 127.

Table 127

Average Daily Loss of Buying Power per Worker / Year by Company Age (in units €)			
Year	< 1 year	1 - 4 years	4 to 9 years
2010	23,14 €	26,54 €	29,19 €
2009	22,46 €	25,93 €	28,58 €
2008	25,04 €	28,37 €	- €
2007	23,10 €	26,33 €	- €
2006	21,67 €	24,89 €	- €
2005	20,43 €	23,66 €	- €
2004	20,80 €	- €	- €

Calculating the annual loss of buying power by multiplying the average unemployment days on table 119 with the correspondent values of table 127, table 128 is achieved.

Table 128

Average Annual Loss of Buying Power per Worker / Year by Company Age (in units €)			
Year	< 1 year	1 - 4 years	4 to 9 years
2010	5.021,31 €	5.759,75 €	6.333,20 €
2009	4.828,49 €	5.575,34 €	6.144,32 €
2008	4.958,10 €	5.617,08 €	- €
2007	4.828,88 €	5.502,10 €	- €
2006	4.811,79 €	5.524,92 €	- €
2005	4.841,83 €	5.606,34 €	- €
2004	4.368,33 €	- €	- €

Having the average loss of buying power per worker in each year, the next step is to apply that estimated cost to each model, because the number of unemployed workers will be different (except for the no model and pessimistic one). Once again on the optimistic model there is no loss of buying power once there is no failure or unemployment.

Tables 129 to 132 show all the situations.

Table 129

Loss of Buying Power (in units €)								
No Model								
Year	2004	2005	2006	2007	2008	2009	2010	
2004	- €	97.298.530,45 €	221.498.031,41 €	7.858.908,72 €	10.365.885,30 €	37.927.323,71 €	27.468.548,76 €	
2005	- €	- €	101.159.244,82 €	148.728.987,09 €	13.634.656,65 €	45.267.631,66 €	30.625.544,99 €	
2006	- €	- €	- €	111.343.714,91 €	167.324.315,85 €	56.921.262,79 €	35.022.814,42 €	
2007	- €	- €	- €	- €	144.211.883,59 €	210.156.257,77 €	41.059.530,72 €	
2008	- €	- €	- €	- €	- €	143.368.943,09 €	214.612.021,89 €	
2009	- €	- €	- €	- €	- €	- €	140.709.088,40 €	
2010	- €	- €	- €	- €	- €	- €	- €	
Total	- €	97.298.530,45 €	322.657.276,23 €	267.931.610,71 €	335.536.741,40 €	493.641.419,01 €	489.497.549,18 €	
Total Cumulative	- €	97.298.530,45 €	419.955.806,68 €	687.887.417,39 €	1.023.424.158,78 €	1.517.065.577,80 €	2.006.563.126,98 €	

Table 130

Loss of Buying Power (in units €)								
Realistic Model								
Year	2004	2005	2006	2007	2008	2009	2010	
2004	- €	20.327.565,57 €	29.780.640,42 €	15.813.713,48 €	20.858.257,30 €	76.317.444,52 €	55.272.274,47 €	
2005	- €	- €	21.784.693,52 €	17.051.883,79 €	22.491.401,53 €	74.672.395,97 €	50.519.162,11 €	
2006	- €	- €	- €	14.193.151,04 €	27.449.150,12 €	91.132.329,12 €	56.072.379,53 €	
2007	- €	- €	- €	- €	21.715.508,62 €	77.525.344,32 €	67.171.181,74 €	
2008	- €	- €	- €	- €	- €	74.930.521,05 €	68.964.020,43 €	
2009	- €	- €	- €	- €	- €	- €	46.603.965,47 €	
2010	- €	- €	- €	- €	- €	- €	- €	
Total	- €	20.327.565,57 €	51.565.333,94 €	47.058.748,31 €	92.514.317,58 €	394.578.034,99 €	344.602.983,75 €	
Total Cumulative	- €	20.327.565,57 €	71.892.899,51 €	118.951.647,82 €	211.465.965,39 €	606.044.000,38 €	950.646.984,13 €	

Table 131

Loss of Buying Power (in units €)								
Optimistic Model								
Year	2004	2005	2006	2007	2008	2009	2010	
2004	- €	- €	- €	- €	- €	- €	- €	
2005	- €	- €	- €	- €	- €	- €	- €	
2006	- €	- €	- €	- €	- €	- €	- €	
2007	- €	- €	- €	- €	- €	- €	- €	
2008	- €	- €	- €	- €	- €	- €	- €	
2009	- €	- €	- €	- €	- €	- €	- €	
2010	- €	- €	- €	- €	- €	- €	- €	
Total	- €	- €	- €	- €	- €	- €	- €	
Total Cumulative	- €	- €	- €	- €	- €	- €	- €	

Table 132

Loss of Buying Power (in units €)								
Pessimistic Model								
Year	2004	2005	2006	2007	2008	2009	2010	
2004	- €	97.298.530,45 €	221.498.031,41 €	7.858.908,72 €	10.365.885,30 €	37.927.323,71 €	27.468.548,76 €	
2005	- €	- €	101.159.244,82 €	148.728.987,09 €	13.634.656,65 €	45.267.631,66 €	30.625.544,99 €	
2006	- €	- €	- €	111.343.714,91 €	167.324.315,85 €	56.921.262,79 €	35.022.814,42 €	
2007	- €	- €	- €	- €	144.211.883,59 €	210.156.257,77 €	41.059.530,72 €	
2008	- €	- €	- €	- €	- €	143.368.943,09 €	214.612.021,89 €	
2009	- €	- €	- €	- €	- €	- €	140.709.088,40 €	
2010	- €	- €	- €	- €	- €	- €	- €	
Total	- €	97.298.530,45 €	322.657.276,23 €	267.931.610,71 €	335.536.741,40 €	493.641.419,01 €	489.497.549,18 €	
Total Cumulative	- €	97.298.530,45 €	419.955.806,68 €	687.887.417,39 €	1.023.424.158,78 €	1.517.065.577,80 €	2.006.563.126,98 €	

Part 5 - Resumed Impact on the Number of Companies and Unemployment

This fifth part is meant to resume the values achieved, concerning the creation of companies, the failure of these and the unemployment resultant. The values are resumed and displayed for each situation from table 133 to 136.

Once again, the optimistic model assumes no failure and the pessimistic model will be equal to the realistic one.

Table 133

Companies Dissolved / Unemployment- No Model						
Year of Creation	Companies Created	Companies Failed	Existent	Existent (%)	Unemployment	
2004	23.556	13.992	9.564	40,60%	73.970	
2005	22.059	12.337	9.722	44,07%	63.437	
2006	25.651	13.440	12.211	47,60%	69.136	
2007	28.911	14.569	14.342	49,61%	73.909	
2008	29.657	13.545	16.112	54,33%	66.953	
2009	25.875	6.552	19.323	74,68%	28.022	
TOTAL	155.709	74.436	81.273	52,20%	375.427	

Table 134

Companies Dissolved / Unemployment- Realistic Model					
Year of Creation	Companies Created	Companies Failed	Existent	Existent (%)	Unemployment
2004	23.556	6.603	16.953	71,97%	37.324
2005	22.059	6.100	15.959	72,35%	33.001
2006	25.651	6.183	19.468	75,89%	33.907
2007	28.911	5.567	23.344	80,74%	29.947
2008	29.657	5.716	23.941	80,73%	27.492
2009	25.875	2.170	23.705	91,61%	9.281
TOTAL	155.709	32.340	123.369	79,23%	170.952

Table 135

Companies Dissolved / Unemployment - Optimistic Model					
Year of Creation	Companies Created	Companies Failed	Existent	Existent (%)	Unemployment
2004	23.556	-	23.556	100,00%	-
2005	22.059	-	22.059	100,00%	-
2006	25.651	-	25.651	100,00%	-
2007	28.911	-	28.911	100,00%	-
2008	29.657	-	29.657	100,00%	-
2009	25.875	-	25.875	100,00%	-
TOTAL	155.709	-	155.709	100,00%	-

Table 136

Companies Dissolved / Unemployment- Pessimistic Model					
Year of Creation	Companies Created	Companies Failed	Existent	Existent (%)	Unemployment
2004	23.556	13.992	9.564	40,60%	73.970
2005	22.059	12.337	9.722	44,07%	63.437
2006	25.651	13.440	12.211	47,60%	69.136
2007	28.911	14.569	14.342	49,61%	73.909
2008	29.657	13.545	16.112	54,33%	66.953
2009	25.875	6.552	19.323	74,68%	28.022
TOTAL	155.709	74.436	81.273	52,20%	375.427

Part 6 - Startups' Analysis

The sixth part of the third appendix addresses the impact that a model of tax deferral would have on the startups. With this purpose, seven companies were analyzed on their initial years of existence.

The calculations done were meant to see the real impact of the CIT and SC charged on the net income. Not all the necessary information was able to be extracted for all the companies and in some cases the analyses could only be done for one year.

The following tables (from the 133 to the 138) show the calculations made. The Income Before Tax, Income Tax, Net Income and Social Charges were provided by the companies.

With this information, the first step was to calculate the percentage of the net income which is represented by the income tax (CIT). To do that a simple division was performed dividing the income tax by the net income (row 5) and multiply it by 100 to have the value in percentage. The next row was to see what would the company's final result be without the CIT, which will be equal to the value of the Income Before Tax.

The same procedure was performed for the Social Charges and then for the combination of both. With the results being displayed on the following tables (the same logic was applied for all the companies).

Table 137

MOVE INTERACTIVE - PRODUÇÕES MULTIMÉDIA			
Year of Constitution - 2001			
Company Still Existent			
Year / Results *			
2004		2005	
Income Before Tax	- 14.285,76 €	Income Before Tax	- 76.144,82 €
Income Tax	3.394,40 €	Income Tax	- €
Net Income	- 17.680,16 €	Net Income	- 76.144,82 €
Social Charges	1.377,21 €	Social Charges	6.886,13 €
Income Tax / Net Income (%)	19,20%	Income Tax / Net Income (%)	0,00%
Income Tax + Net Income	- 14.285,76 €	Income Tax + Net Income	- 76.144,82 €
Social Charges / Net Income (%)	7,79%	Social Charges / Net Income (%)	9,04%
Social Charges + Net Income	- 16.302,95 €	Social Charges + Net Income	- 69.258,69 €
(IT + SC) / Net Income (%)	26,99%	(IT + SC) / Net Income (%)	9,04%
IT + SC + Net Income	- 12.908,55 €	IT + SC + Net Income	- 69.258,69 €

* Although the company was created in 2001 it was on a research and development phase until 2004. Only in 2004 the commercialization process started. Therefore, for simulation purposes this company is considered for this study.

Table 138

MTB - MARCAS, TRADE & BRANDING			
Year of Constitution - 2006			
Failed Company			
Year / Results			
2006		2007	
Income Before Tax	- 145.130,42 €	Income Before Tax	- 237.256,53 €
Income Tax	- 37.019,40 €	Income Tax	- €
Net Income	- 108.111,02 €	Net Income	- 237.256,53 €
Social Charges	11.585,06 €	Social Charges	16.666,67 €
Income Tax / Net Income (%)	-34,24%	Income Tax / Net Income (%)	0,00%
Income Tax + Net Income	- 145.130,42 €	Income Tax + Net Income	- 237.256,53 €
Social Charges / Net Income (%)	10,72%	Social Charges / Net Income (%)	7,02%
Social Charges + Net Income	- 96.525,96 €	Social Charges + Net Income	- 220.589,86 €
(IT + SC) / Net Income (%)	23,53%	(IT + SC) / Net Income (%)	7,02%
IT + SC + Net Income	- 96.525,96 €	IT + SC + Net Income	- 220.589,86 €

Table 139

OON - RECYCLING SOLUTIONS	
Year of Constitution - 2008	
Failed Company	
Year / Results*	
2008	
Income Before Tax	- 420.241,57 €
Income Tax	1.130,36 €
Net Income	- 421.371,93 €
Social Charges	29.294,59 €
Income Tax / Net Income (%)	0,27%
Income Tax + Net Income	- 420.241,57 €
Social Charges / Net Income (%)	6,95%
Social Charges + Net Income	- 392.077,34 €
(IT + SC) / Net Income (%)	7,22%
IT + SC + Net Income	- 390.946,98 €

* In this case, it was only possible to access information of the first year of activity

Table 140

SATELLITE NEWSPAPERS PORTUGAL - DISTRIBUIÇÃO DE IMPRENSA, JORNAIS E REVISTAS	
Year of Constitution - 2005	
Failed Company	
Year / Results*	
2006	
Income Before Tax	- 319.170,72 €
Income Tax	1.338,32 €
Net Income	- 320.509,04 €
Social Charges	17.885,66 €
Income Tax / Net Income (%)	0,42%
Income Tax + Net Income	- 319.170,72 €
Social Charges / Net Income (%)	5,58%
Social Charges + Net Income	- 302.623,38 €
(IT + SC) / Net Income (%)	6,00%
IT + SC + Net Income	- 301.285,06 €

* In this case, it was only possible to access information of the second year of activity

Table 141

LUFTHAFEN			
Year of Constitution - 2005			
Still Existent Company			
Year / Results*			
2005		2006	
Income Before Tax	- 1.373,35 €	Income Before Tax	- 10.597,78 €
Income Tax	- €	Income Tax	388,82 €
Net Income	- 1.373,35 €	Net Income	- 10.986,60 €
Social Charges	1.200,63 €	Social Charges	1.487,50 €
Income Tax / Net Income (%)	0,00%	Income Tax / Net Income (%)	3,54%
Income Tax + Net Income	- 1.373,35 €	Income Tax + Net Income	- 10.597,78 €
Social Charges / Net Income (%)	87,42%	Social Charges / Net Income (%)	13,54%
Social Charges + Net Income	- 172,72 €	Social Charges + Net Income	- 9.499,10 €
(IT + SC) / Net Income (%)	87,42%	(IT + SC) / Net Income (%)	17,08%
IT + SC + Net Income	- 172,72 €	IT + SC + Net Income	- 9.110,28 €

Table 142

WIDESCOPE			
Year of Constitution - 2005			
Still Existent Company			
Year / Results*			
2005			2006
Income Before Tax	- 1.618,22 €		Income Before Tax 500,22 €
Income Tax	2.224,18 €		Income Tax - €
Net Income	- 3.842,40 €		Net Income 500,22 €
Social Charges	1.114,69 €		Social Charges 1.540,16 €
Income Tax / Net Income (%)	57,89%		Income Tax / Net Income (%) 0,00%
Income Tax + Net Income	- 1.618,22 €		Income Tax + Net Income 500,22 €
Social Charges / Net Income (%)	29,01%		Social Charges / Net Income (%) 307,90%
Social Charges + Net Income	- 2.727,71 €		Social Charges + Net Income 2.040,38 €
(IT + SC) / Net Income (%)	86,90%		(IT + SC) / Net Income (%) 307,90%
IT + SC + Net Income	- 503,53 €		IT + SC + Net Income 2.040,38 €

Table 143 resumes the most important findings of the previous tables by displaying the calculated values of the CIT and SC for the two year period.

Table 143

Resumed Table (Startups)											
Year	Company	1									
		Net Income (NI)	CIT	CIT % of NI	NI + CIT	SC	SC % of NI	NI + SC	CIT + SC	(CIT + SC) % of NI	NI + CIT + SC
Failed Companies	MTB	108.111,02 €	- 37.019,40 €	- 34,24%	- 108.111,02 €	11.585,06 €	10,72%	- 96.525,96 €	11.585,06 €	10,72%	- 96.525,96 €
	OON	421.371,93 €	1.130,36 €	0,27%	- 420.241,57 €	29.294,59 €	6,95%	- 392.077,34 €	30.424,95 €	7,22%	- 390.946,98 €
	SATELLITE										
	SMART ADVERTISING	365.069,68 €	- €	0,00%	- 365.069,68 €	- €	0,00%	- 365.069,68 €	- €	0,00%	- 365.069,68 €
Existent Companies	MOVE	17.680,16 €	3.394,40 €	19,20%	- 14.285,76 €	1.377,21 €	7,79%	- 16.302,95 €	4.771,61 €	26,99%	- 12.908,55 €
	WIDESCOPE	3.842,40 €	2.224,18 €	57,89%	- 1.618,22 €	1.114,69 €	29,01%	- 2.727,71 €	3.338,87 €	86,90%	- 503,53 €
	LUFTHAFEN	1.373,35 €	- €	0,00%	- 1.373,35 €	1.200,63 €	87,42%	- 172,72 €	1.200,63 €	87,42%	- 172,72 €
Year	Company	2									
		Net Income (NI)	CIT	CIT % of NI	NI + CIT	SC	SC % of NI	NI + SC	CIT + SC	(CIT + SC) % of NI	NI + CIT + SC
Failed Companies	MTB	237.256,53 €	- €	- €	- 237.256,53 €	16.666,67 €	0,07 €	- 220.589,86 €	16.666,67 €	0,07 €	- 220.589,86 €
	OON										
	SATELLITE	320.509,04 €	1.338,32 €	0,00 €	- 319.170,72 €	17.885,66 €	0,06 €	- 302.623,38 €	19.223,98 €	0,06 €	- 301.285,06 €
	SMART ADVERTISING	130.174,28 €	- €	- €	- 130.174,28 €	- €	- €	- 130.174,28 €	- €	- €	- 130.174,28 €
Existent Companies	MOVE	76.144,82 €	- €	- €	- 76.144,82 €	6.886,13 €	0,09 €	- 69.258,69 €	6.886,13 €	0,09 €	- 69.258,69 €
	WIDESCOPE	500,22 €	- €	- €	500,22 €	1.540,16 €	3,08 €	2.040,38 €	1.540,16 €	3,08 €	2.040,38 €
	LUFTHAFEN	10.986,60 €	388,82 €	0,04 €	- 10.597,78 €	1.487,50 €	0,14 €	- 9.499,10 €	1.876,32 €	0,17 €	- 9.110,28 €

Appendix 4 – Surveys

This appendix includes the detailed information about the two surveys made.

Survey one was made with the goal of questioning entrepreneurs with failed businesses, trying to understand the reasons and if taxes played any role in that failure.

Survey two was made to the general public with the goal of trying to understand until what point the hypothesis of a tax deferral would act as an incentive to the creation of one's own business and assess the perception of the level of risk a creation of a new business have in Portugal.

The methods of collecting answers were exactly the same for both surveys and were done through an online survey using the platform available in the Survey Monkey (SM)⁵² web site, being diffused among the social networks and a mobile application of Jornal de Negócios (JN)⁵³ available for smartphones and tablets.

Survey 1 – Survey to Entrepreneurs

This survey, aimed to question entrepreneurs, comprised seven closed questions, six of simple multiply choice and one demanding a quantitative measure. The sample size achieved 152 answers, 6 from SM's internet survey and the remaining 146 from the JN's mobile application.

In here, the most important questions were derived from the respondents who answered positively to the question of already having had a failed business (question 4).

Briefly analyzing the questions and their purpose:

- Question 1: *"Please state your gender"*; Possible answer: *"Male or Female"*. The goal was to have a demographic characterization of the sample, in this case defining its gender.
- Question 2: *"Please state your age"*; Possible answer: *"15-24, 25-64, >65"*. The goal was also to have a demographic characterization of the sample, defining its age. In this case the answer would limit the possible respondents, excluding the ones with less than 15 years, because the target of this survey was to address a sample with propensity to engage in entrepreneurial activities (Ressi, 2011) (79).
- Question 3: *"Do you have or had in any time of your life your own business?"*; Possible answer: *"Yes or No"*. The goal was to verify if the respondent has ever been or is currently involved in any entrepreneurial business.
- Question 4: *"Have you ever been involved in a business that failed (the company closed)?"*; Possible answer: *"Yes or No"*. The goal in here was to verify the size of the sample that was of interest for this analysis.
- Question 5: *"If yes, what might have been the main reasons? (please classify in terms of importance, with 1- very important and 5- less important)"*; Possible answer: evaluating the options *"low sales, taxes, high costs, competition and lack of knowledge/expertise"* from 1 to 5, not by order but as a factor of importance. The goal was to understand the significance of each of the five variables for the failure of the startups for the persons who answered yes on question 4.

⁵² From this point forward the abbreviation SM (displayed in brackets) will be used when referring to Survey Monkey. SM is a private company founded in 1999 by Ryan Finley. Its mission *"is to set research free. SurveyMonkey was created as a cost-effective and modern alternative to traditional market research"* (Wikipedia, 2012) (109). All abbreviations can be seen on the list of abbreviations.

⁵³ From this point forward the abbreviation JN (displayed in brackets) will be used when referring to Jornal de Negócios. JN *"is a daily business newspaper of [Portuguese] national scope, initially created as a weekly newspaper on the 8th of January of 1998 become daily on the 8th of May of 2003"*. Its web site *"was the first economical and financial online publication in Portugal"* (Wikipedia, 2012) (108). All abbreviations can be seen on the list of abbreviations.

- Question 6: “Is it possible that your company would have survived if it had more time to implement itself in the marketplace?”; Possible answer: “Yes or No”. The goal was to understand if with more time (possible gained from the deferral of taxes) the company would have survived.
- Question 7: “Do you think your company would have survived or expanded (if it did not fail) if it didn’t had to pay the CIT and Social Charges for the first 2 years of its activity, deferring them into the future?”; Possible answer: “Yes or No”. The goal is to verify the possibility indicated on question 6 that the taxes might have had an impact on the firm’s survival.

Question 1 - Gender

Q1. Please state your gender				
Answer	SM	JN	Total	% of Total
Male	6	138	144	94,74%
Female	0	8	8	5,26%
Total	6	146	152	100%

More than 90% of the answers were given by men a consequence of the sources used (especially the JN application) that is targeted to businessmen.

Question 2 - Age

Q2. Please state your age				
Answer	SM	JN	Total	% of Total
15 - 24	0	8	8	5,26%
25 -65	5	135	140	92,11%
> 65	1	3	4	2,63%
Total	6	138	152	100%

Once again the age of the respondents reflect the sources used, with more than 92% being within the 25 to 65 segment (despite being the larger segment).

Question 3 – Business Ownership

Q3. Do you have or had in any time of your life your own business?				
Answer	SM	JN	Total	% of Total
Yes	6	86	92	60,53%
No	0	60	60	39,47%
Total	6	146	152	100%

A significant percentage (more than 60%) confirmed that have had a business in any time of their lives which is positive for the significance of this study.

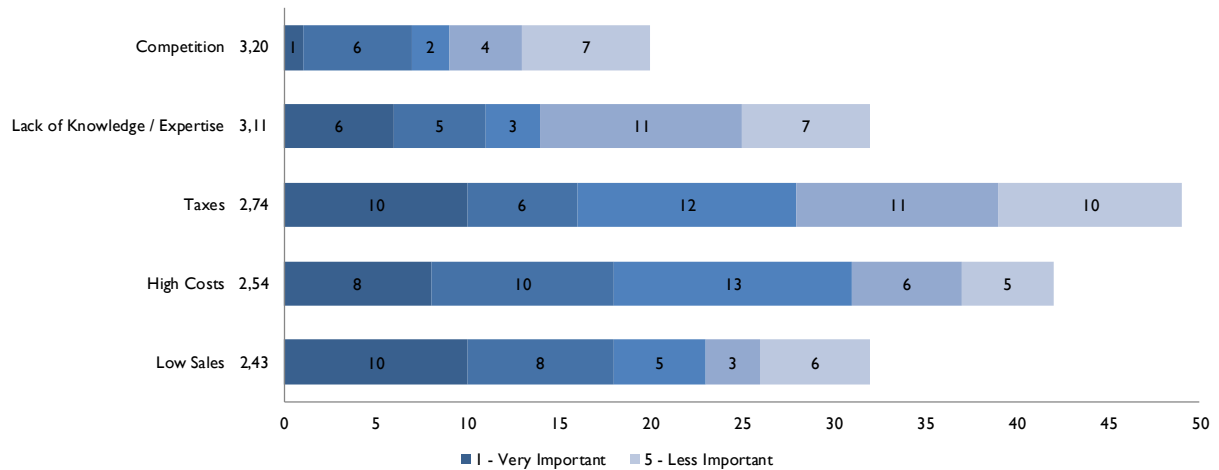
Question 4 – Failed Business Onership

Q4. Have you ever been involved in a business that failed (the company closed)?				
Answer	SM	JN	Total	% of Total
Yes	2	38	40	26,32%
No	4	108	112	73,68%
Total	6	146	152	100%

This question is important to define the size of the sample that matters for the questions 5 and 6. In here, only the people who answered “yes” will be relevant which represents a total of 40 people.

Question 5 – Failure Reasons

5. If yes, what might have been the main reasons? (please classify in terms of importance, with 1- very important and 5- less important)



From the people who answered “yes” on question 4, only 35 answers were validated (because they were the only ones that were completed).

In the chart is displayed the significance each factor had on the failure of the company and how many times and in what measure (from 1 to 5) the respondents considered its importance.

Question 6 – Time To Implement Importance For Survival

Q6. Is it possible that your company would have survived if it had more time to implement itself in the marketplace?

Answer	SM	JN	Total	% of Total
Yes	2	23	25	16,45%
No	0	15	15	9,87%
No answer / Not applicable	2	108	110	72,37%
Total	2	146	150	100%

On question 6, the answers validated were 40 (from the 40 that answered “yes” on question 4). From the validated questions, about 2/3 agreed that with more time the company would have survived.

Question 7 – Taxes Importance For Survival

Q7. Do you think your company would have survived or expanded (if it did not fail) if it didn't had to pay the CIT and Social Charges for the first 2 years of its activity, deferring them into the future?

Answer	SM	JN	Total	% of Total
Yes	5	97	102	67,11%
No	1	49	50	32,89%
Total	6	146	152	100%

Finally, question 7 includes once again the entire sample and about 67% agreed that the CIT and SC, if deferred, could influence the company’s existence or expansion.

Survey 2 – Survey to the General Public

This second survey, aimed to question the general public, also comprised seven closed questions, but all were simple multiply choice. The sample achieved 146 answers, 31 from the SM's internet survey and the remaining 115 from the JN's mobile application.

Briefly analyzing the questions and its purpose:

- Question 1: *“Please state your gender”*; Possible answer: *“Male or Female”*. The goal was to have a demographic characterization of the sample, in this case defining its gender.
- Question 2: *“Please state your age”*; Possible answer: *“15-24, 25-64, >65”*. The goal was also to have a demographic characterization of the sample, defining its age. In this case the answer would limit the possible respondents, excluding the ones with less than 15 years, because the target of this survey was to address a sample with propensity to engage in entrepreneurial activities (Ressi, 2011) (79).
- Question 3: *“Do you have or had in any time of your life your own business?”*; Possible answer: *“Yes or No”*. The goal was to verify if the respondent has ever been or is currently involved in any entrepreneurial business.
- Question 4: *“Do you intend to have your own business in any time of your life?”*; Possible answer: *“Yes or No”*. The goal in here was to verify the size of the sample that might have interest in creating their own business. It is considered yes the persons that also answered yes on the previous question.
- Question 5: *“Do you think it is risky to start your own business in Portugal?”*; Possible answer: *“Yes or No”*. The goal was to understand the perception of risk associated with the creation of a business in Portugal.
- Question 6: *“Do you think that that risk has ever stopped, is stopping or will stop you from starting your own business?”*; Possible answer: *“Yes or No”*. The goal was to understand if the previous perception of risk is a blocker of the creation of new businesses in Portugal.
- Question 7: *“Knowing that the CIT and Social Charges are the most relevant taxes for the companies, would you have a higher incentive to create your own business if you knew that you wouldn't have to pay them for the first 2 years of your company's activity, deferring them into the future?”*; Possible answer: *“Yes or No”*. The goal is to verify if in fact, the deferral of taxes would create an incentive for the creation of new businesses in Portugal or not.

Question 1 - Gender

Q1. Please state your gender				
Answer	SM	JN	Total	% of Total
Male	22	110	132	90,41%
Female	9	5	14	9,59%
Total	31	115	146	100%

Once again, more than 90% of the answers were given by men and once again this might have been a consequence of the sources used.

Question 2 - Age

Q2. Please state your age				
Answer	SM	JN	Total	% of Total
15 - 24	26	7	33	22,60%
25 -65	5	105	110	75,34%
> 65	0	3	3	2,05%
Total	5	108	146	100%

The sources used are again in evidence in this question, with more than 75% of the respondent being within the 25 to 65 segment (despite being the larger segment).

Question 3 – Business Ownership

Q3. Do you have or had in any time of your life your own business?					
Answer	SM	JN	Total	% of Total	
Yes	3	58	61	41,78%	
No	28	57	85	58,22%	
Total	31	115	146	100%	

This question shows that, on this case, about 58% of the surveyed never started their own business which was expected and is in fact positive because the goal of this survey is to understand the general public's opinion.

Question 4 – Business Ownership Desire

Q4. Do you intend to have your own business in any time of your life?					
Answer	SM	JN	Total	% of Total	
Yes	25	95	120	82,19%	
No	6	20	26	17,81%	
Total	31	115	146	100%	

Although have never started their own business the same people do intend to start it one day. This intention is shared by 82% of the sample (although this value includes the respondents that had already started their business).

Question 5 – Business Ownership Risk

Q5. Do you think it is risky to start your own business in Portugal?					
Answer	SM	JN	Total	% of Total	
Yes	26	96	122	83,56%	
No	5	18	23	15,75%	
No answer / Not applicable	0	1	1	0,68%	
Total	31	115	146	100%	

This question's results are very clear concerning the perception of the level of risk to start a business in Portugal, considered by the participants of this survey, with 83,56% agreeing with the proposition that it is risky to be an entrepreneur.

Question 6 - Business Ownership Risk Importance

Q6. Do you think that that risk has ever stopped, is stopping or will stop you from starting your own business?					
Answer	SM	JN	Total	% of Total	
Yes	11	77	88	60,27%	
No	20	38	58	39,73%	
Total	31	115	146	100%	

Question 6 verifies that that risk is in fact a constraint to the creation of new businesses, with 60,27% of the respondent stating that that risk has stopped, is stopping or might stop them from starting their own business.

Question 7 – Tax Deferral Incentive

Q7. Knowing that the CIT and Social Charges are the most relevant taxes for the companies, would you have a higher incentive to create your own business if you knew that you wouldn't have to pay them for the first 2 years of your company's activity, deferring them into the future?

Answer	SM	JN	Total	% of Total
Yes	27	97	124	84,93%
No	4	18	22	15,07%
Total	31	115	146	100%

Finally, question 7 confirms the possibility of using the CIT and SC as an incentive to the creation of new businesses with about 85% of the respondents considering that they would have higher incentive to create their own business if these taxes were possible to be deferred.

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